AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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Contents of this Number.

Among the Farmers, No. 32.—Veterinary Surgeons—Effect of Fertilizers—Sludge acid..... 334
Barn, a Large and Complete.....4 *Illustrations*..340
Bee Notes for September .....2 *Illustrations*..329
Boys and Girls.—Young Microscopists—Woolly Aphis—Plant Louse—Ferns—Aunt Sue—Aunt Polly's Visit to City—International Sunday School Lessons—Washington Monument—Talking at a Distance—Tim's Kit—Native Water Fowl.14 *Illustrations*..345-348
Butter Stamps and Packages.....3 *Illustrations*..337
California Succulent.....*Illustrated*..341
Cattle Sheds.....4 *Illustrations*..337
Cats vs. Rats and Mice.....339
Celery in Winter, Keeping.....342
Channel Islands, Notes from.....*Illustrated*..323
Cow Milkers.....331
Dodders as Weeds.....339
Drain, Levelling the Bottom of.....4 *Illustrations*..338
Farm Order of the Right Ring 330
Farm Work in September.....324
Fertilizer, the Best 338
Flemish Milk Wagon.....*Illustrated*..332
Flower and Fruit Garden and Lawn.....324-325
Garden Work for September.....325
Gratifying Figures 331
Hay Carriage, Home-Made.....5 *Illustrations*..339
Hints About Work.....324
Hints and Helps for Farmers.—Temporary Whiffle Tree—Barn Closet—Water Pan for Chicks—Stable Rake—Saw-buck—Manure-Dumping.....6 *Illus*..336
Household Department.—Common Weeds Made Useful—Home Topics—Children—Health—Cleansing Laces—Decorations—Washing—Notes and Queries. Sundry Recipes.....3 *Illustrations*..343-345
Humbug Column.....328
Jersey-Ayrshire, cross-bred cow.....*Illustrated*..333
Kitchen and Market Garden.....325
Market Reports.....326
Norfolk Polled Heifer.....*Illustrated*..333
Orchard and Nursery in September.....324
Oleomargarine.....332
Picnics, Harvest Home.....329
Railways of the World.....330
Raw Hide Horse-Shoes.....*Illustrated*..337
Saw (Hand), Filing and Setting .....6 *Illustrations*..336
Science Applied to Farming, No. 45.—Ville's Formulas331
Sheep as Manure Makers.....336
Sheltering Vehicles and Machines.....338
Starry Magnolia.....*Illustrated*..341
Strawberry Culture, Successful.....329
Talks on Farm Crops, No. 19.....335
Village Improvement.....343
Waste Lands, Profitable Use for.....339
Water Pipes, Repairing.....3 *Illustrations*..330
Wheat, What Kind.....334
Windmills—How Made.....2 *Illustrations*..330
Winter Bouquets, Grasses, etc.....342

INDEX TO "BASKET," AND OTHER SHORT ARTICLES.

Amer. Agri. in Japan....354
Artichokes for Hogs....327
Bat Guano.....354
Caponizing.....327
Colorado Beetle.....354
Comprehensive Horticul353
Cucumber Catsup.....354
Exports and Imports....354
Feed Cutter, Useful.....344
Fern Book.....327
Fly in Wheat.....356
Fruit Growers in Cal....340
Garget in Cows.....356
Grasses Named.....356
Grazing Pastures 334
Hessian Fly and Midge..322
Hoist Wheel.....356
House Plans 327
Lamp, the Best.....327
Lasell Seminary.....354
Lime, Salt, Ashes.....356
Manual of Apiary.....327
Manual of Georgia.....353
Mass. Hort. Society.....328
Merino Rams.....327
Mistakes about Goats....354
North Carolina 354
Our Fair List.....353
Packing Butter.....354
Pasturing Fields.....345
Peaches by Mail.....327
Pear Blight.....356
Physicians.....353
Prickley Comfrey.....356
Rain on Acre.....322
Raising Farmers.....353
Rates Reduced.....328
Red Cedar from Seed...343
Sandwich Islands.....354
Seed Wheats.....337
Sheep Disease.....354
Signals for Ranges.....354
Sowing Wheat.....354
Strawberries in Belgium, *Ill*.....327
Sundry Humbugs.....328
Talks on Manures.....328
Tomato Catsup.....354
Trimming Lamps.....327
Turnip Machine, *Ill*.... 327
Twewnty-five ct. Dinner.354
U. S. Entom. Com. 353
Watch for Everybody...354
Winter Greeneries.....328
Winter Oats 354
Woman Farmer.....327

A **GOOD WATCH** for **EVERYBODY.—To Be Obtained FREE, or for a Very Little Money.**—A really valuable, very desirable, reliable time-piece. For particulars, see page 354 of this paper.

Calendar for the Month.

Day of Month.	Day of Week.	*Boston, New England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Mo'n sets.	*N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises.	Sun sets.	Mo'n sets.	*Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises.	Sun sets.	Mo'n sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	S	5 25	6 35	8 38	5 27	6 33	8 44	5 29	6 31	8 50
2	M	5 26	6 33	9 19	5 28	6 31	9 26	5 30	6 29	9 33
3	T	5 27	6 31	10 8	5 29	6 30	10 15	5 31	6 28	10 23
4	W	5 28	6 30	11 5	5 30	6 28	11 13	5 32	6 26	11 30
5	T	5 29	6 28	morn	5 31	6 26	morn	5 33	6 25	morn
6	F	5 30	6 26	0 9	5 32	6 25	0 16	5 33	6 23	0 25
7	S	5 31	6 24	1 15	5 33	6 23	1 21	5 34	6 22	1 27
8	S	5 33	6 23	2 22	5 34	6 21	2 27	5 35	6 20	2 33
9	M	5 34	6 21	3 27	5 35	6 20	3 31	5 36	6 18	3 36
10	T	5 35	6 19	4 30	5 36	6 18	4 32	5 37	6 17	4 35
11	W	5 36	6 17	rises	5 37	6 16	rises	5 38	6 15	rises
12	T	5 37	6 16	6 22	5 38	6 15	6 24	5 39	6 14	6 25
13	F	5 38	6 14	6 42	5 39	6 13	6 45	5 40	6 12	6 47
14	S	5 39	6 12	7 3	5 40	6 11	7 7	5 41	6 11	7 11
15	S	5 40	6 10	7 29	5 41	6 10	7 34	5 41	6 9	7 39
16	M	5 41	6 8	8 0	5 42	6 8	8 6	5 42	6 7	8 12
17	T	5 42	6 7	8 37	5 43	6 6	8 44	5 43	6 6	8 51
18	W	5 43	6 5	9 24	5 44	6 4	9 32	5 44	6 4	9 39
19	T	5 44	6 3	10 22	5 45	6 3	10 29	5 45	6 2	10 36
20	F	5 45	6 1	11 31	5 46	6 1	11 34	5 46	6 1	11 45
21	S	5 46	6 0	morn	5 47	5 59	morn	5 47	5 59	morn
22	S	5 47	5 58	0 40	5 48	5 58	0 45	5 48	5 58	0 51
23	M	5 49	5 56	1 56	5 49	5 56	2 0	5 49	5 56	2 5
24	T	5 50	5 54	3 14	5 50	5 54	3 17	5 50	5 54	3 20
25	W	5 51	5 53	4 33	5 51	5 53	4 34	5 51	5 53	4 35
26	T	5 52	5 51	sets	5 52	5 51	sets	5 51	5 51	sets
27	F	5 53	5 49	6 3	5 53	5 49	6 6	5 52	5 50	6 10
28	S	5 54	5 47	6 35	5 54	5 48	6 40	5 53	5 48	6 45
29	S	5 55	5 45	7 14	5 55	5 46	7 20	5 54	5 46	7 27
30	M	5 56	5 44	8 1	5 56	5 44	8 9	5 55	5 45	8 16

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart	3 3 42 ev.	3 30 ev.	3 18 ev.	3 6 ev.	2 56 ev.
Full M'n	11 11 5 mo.	10 53 mo.	10 41 mo	10 29 mo.	9 59 mo.
3d Quart.	19 1 46 ev.	1 34 ev.	1 22 ev.	1 10 ev.	0 40 ev.
New M'n	26 9 26 mo.	9 14 mo.	9 2 mo	8 50 mo.	8 20 mo.

Terms, Publishers' Notices, etc.

A Most Valuable and instructive paper is the *American Agriculturist* for September 1st, with the usual 60 or more original engravings, all instructive or pleasing. Among the 150 articles and items are: Seven columns of hints on September work, including directions for Bees; Chapters on Cow-milking by Machinery, and Oleomargarine; Humbugs shown up; Agr. Notes from the Channel Islands; Large and Complete Barn; Harvest Home Picnics; Using Waste Lands; Talking at a Distance, or Simple Signals for Farmers, Rifle Ranges, etc.; Home-made Wind-mill; Among the Farmers; Talks on Farm Crops—corn-fodder, and farm help; Many "Hints and Helps," illustrated; Science Applied to Farming; Norfolk and Jersey Cows, illustrated; Cattle Sheds; Best Fertilizers; New and Old Flower Plants, illustrated; Keeping Celery in Winter; Common Weeds Made Ornamental; Many Home Topics, and Chapters to interest and instruct the Young; Our Native Water-Fowl, illustrated, etc., etc.—A reduction of Terms is announced to $1.50 a year; Single Numbers, 15 cents. ORANGE JUDD CO., New York, Publishers.

Editors will find, especially worth copying, a variety of articles in this number. "Talking at a Distance," (pages 322 and 347) will interest Rifle Associations and Farmers. Cow-milking Machines are much advertised now; (see page 331). Interesting Notes from the Channel Islands describe the sources of a valuable breed of cows. "Talks on Farm Crops" gives important suggestions in regard to farm help. "Among the Farmers" contains an important hint to country physicians. Harvest Home Picnics are worthy of general adoption. Keeping Celery in winter is seasonable. "Home Topics" will interest all housekeepers. The origin of the International S. S. Lessons is given. The "Railways of the World" supply interesting figures in condensed form.

To Editors and Publishers.

Reduced Terms of the American Agriculturist for Clubbing with other Journals, or for Premiums.

In response to numerous recent proposals for combining this Journal with others, at low combined rates, and for copies to be used as Premiums, the Publishers have finally decided to supply it, under certain conditions, for **such** purposes, at only

$1 a Year,

(and send it *post-paid* to single names).

☞ As our regular full-paying ($1.50) subscribers are the first to secure such reduction—a serious loss to us of all profits on circulation—we do not care to make this reduction, unless the offer is set forth prominently, and such commendation given as will be likely to secure *new* subscribers for this Journal, as well as for the Journal with which it is combined. (A mere offer at low combined rates, would simply under-bid our own terms with no advantage to us.)

Our lowest rate of the *American Agriculturist* to single subscribers is $1.50 a year, and we object to any others offering it under this rate, except in combination.

A prominent notice, standing or frequently repeated, describing the merits of the *American Agriculturist* and of the Journal with which it is combined, and offering them at a *low combined price*, or offering it as a premium, will, as a rule, largely increase the circulation of *both* Journals among *new* readers. This has been the decided result during a year past, as well as previously. Single Journals have taken hundreds of copies, ranging all the way up to 1,500, 2,500, and in one case, to over 5,000.

Several Editors who have just contracted for the new rate ($1), are preparing circulars to send in *every* family within 10 to 20 miles of their offices, offering their own journals and the *American Agriculturist* combined, at $2 a year, when their own regular terms are $1.50, and at $2.50 for both, from now to Jan. 1st, 1880. Those published at $3 are making similar offers for $3.25 for a year, and $2.75 or $3 for the longer period (paying us $1.25 for the longer period).

More than **$27,000** are annually expended in preparing the *American Agriculturist*, before it reaches the press. It is printed on strong, sized and calendered paper, made of pure linen and cotton rags, with no admixture of clay, straw, or woody fibre.

The utmost care is taken to have every line *reliable*, to condense as much practical instruction into its pages as is possible, and to adapt it to the wants and necessities not only of Farmers, Gardeners, owners of Village and City Yards or Plots, but to Every Family.

Thoroughly competent, practical men, able to write fairly, without whims, imperfect scientific knowledge, or fanciful theories, are very scarce indeed. The Publishers of the *American Agriculturist* spare no pains or expense, to secure the *best* men. By such a course, for 25 years, this journal has secured and retained a circulation unequalled, in its department, by any other seven or eight journals, if by any other ten or twelve.

Every German Cultivator and Laborer on the Farm, or in the Garden, OUGHT to have the German *American Agriculturist*, and thousands of *new* subscribers are taking it this year. It contains not only the Engravings and all the essential reading matter of the American edition, but an additional *Special German Department*, edited by the Hon. Frederick Münch, of Missouri, a skillful and successful cultivator and excellent writer. No other German Agricultural or Horticultural Journal in America has been so long issued; no other contains so much useful information and so many engravings.

Reliable Business Men, those who have both the *ability* and the *intention* to do what they promise, are the only ones invited to use the business-pages of this journal, and those in charge of that department are under positive instructions to admit no others at any price, and they try to live up to it, and generally do, though once in a while they may make a mistake—to err is human—but *this* seldom occurs. We could make a fortune in a single year, and supply the paper at lower rates, if the advertising pages were thrown open to those who gladly pay high prices, as they can afford to, because they give little for much. But we mean our advertising pages shall be a valuable source of *trustworthy* information to our readers.—When ordering from, or corresponding with any of our advertisers, or sending for catalogues, etc., it is well to state that you are a reader of this Journal. They will know what we expect, and what you expect of them as to prompt and fair treatment.

Trade With Sandwich Islands.—Mr. J. B. Castle, a resident of Honolulu, referring to Mr. Bellamy's article in the *American Agriculturist* for August, says: The history of the reciprocity treaty, and the statistics of trade between the United States and Hawaiian Islands, show the treaty in a highly favorable light. It is not a mere question of the absolute amount of coin paid into the U. S. Treasury, but a choice between a small inactive trade, and an intimate, prosperous commercial relation between this country and a natural source of supply for the Pacific Coast. The report of the Statistical Bureau at Washington, shows the *increase* alone of our exports to the Sandwich Islands to be nearly equal to the amount annually paid for duties previous to the treaty. Its tendency steadily and strongly turning trade from other countries to this, and assisting our manufacturers to a free competition in supplying the Islands. Could you give the space, it would be easy to show any intelligent and thoughtful inquirer the real *reciprocity* of the treaty. For want of time and space I omit reference to other statements of Mr. Bellamy—but I hope all interested will refer to the statistics and reports of the working of the treaty, published in Washington, April 17, 1878.

Advantages of a Feed-Cutter.—"A. D.," Du Quoin, Ill., writes, that in 1871, he hand 30 acres of land, 4 cows, and a pair of mules, for which he found it difficult to provide fodder. For economy, he bought a feed-cutter, and then had plenty of feed and increased his stock. This increased his manure, and that doubled the supply of feed. The stock was again added to, and at present there are 22 head of cattle and horses on the 30 acres, and more feed than can be used. He now has a steam engine attached to a large-sized cutter. His prosperity dates from the day he used a fodder cutter.

Simple Signals for Rifle Ranges, Farmers, etc.—Since sending page 347 to press, several trials have been made of "talking at a distance," with gratifying results. After a few minutes' practice, a boy at a distance called off the numbers 23, 3, 23; 322; 21, 1, 113, 113; 32, 11; 11, 213, 2, 132; 322; 211, 1, 132, 32, 2, 211 ("*did the ball go over the target?*") almost as fast as we could indicate the figures with our hands, and he promptly signalled back with his hands: 122, 11; 3, 211; 213, 2, 122, 211; 211, 11; 322; 132, 3, 32, 33, 211 ("*No; it went to the right*"). In shooting at long range, 500, 800, 900, or 1,000 yards, it is desirable to be able to readily communicate with the marker, and this mode will be found very convenient. Even if the whole alphabet be not used, it will be easy to arrange a few numbers to represent the most common requirements, as 132 for: "Repeat your examination of the target" (right hand up, left hand out, right hand out, 1, 3, 2), and so of other sentences. Hunters can use this sign language for silent communication about game appearing, or otherwise. The *Farmer*, by having the table of letters and numbers learned by all on the farm, which can be quickly done, will have the easy means of communicating with men or boys in distant fields, and thus save a world of steps.

Winter Oats.—"G. H. A." An experiment with winter oats last season was a complete failure with us. They grew until the latter part of the winter, when every spire was destroyed. We do not advise any one to risk sowing them for a crop, so far north as the latitude of New York, until tested in a small way first.

North Carolina is having good work done in its Agricultural Department, by Dr. Le Duc, its chemist, in the important fertilizer question. His labors have tended to place the manufacture and trade on a reliable basis, which means much when it is considered that about one million dollar's worth of fertilizers are sold and used in that State every year. We understand that preparations are now being made for more extensive experimental work and investigations under the auspicies of the Department, and that an excellent assistant chemist, Mr. Geo. Warnecke, who first came from Germany by invitation to the Connecticut Agricultural Experiment Station at Middletown, has already been engaged.

Bat Guano.—"W. W.," Round Rock, Tex. This manure is not yet in the market as a commercial article. Its composition varies widely, according as it is pure, or mixed with inert matters, or been wet or dry. It is especially valuable for the nitrogen it contains, the proportion of which varies from *one* to *ten* per cent; it also contains from ½ to 4½ per cent of phosphoric acid. Its value, compared with commercial fertilizers, is from $10 to $40 per ton. Bat guano, found in the caves frequented by these animals, will make a good manure, especially for grains, but may also be used with profit on any crop requiring a strong manure, *not* rich in potash.

Tomato Catsup.—There is a wonderful difference among the various articles called Tomato Catsup, from the rich sauce, so thick it will hardly pour, to the thin, watery stuff that would not keep but for the vinegar and salt it contains. Every family should make its own, not only as a matter of economy, but of safety. If *one must buy*, avoid the bright red attractive looking compounds, as they are artificially colored. The cheap stuff sold to restaurants is made from the peelings and other refuse of the canning factories. Good catsup can only be made when the fruit is in perfection; towards the end of the season, when the nights get cool, and growth is slow, the fruit is watery, and will not yield the rich pulp of the best fruit. Select ripe tomatoes, cutting away any green portions, cut in pieces, stew until thoroughly done, and rub through a sieve fine enough to retain the seeds. Evaporate what passes the sieve to the desired thickness; for this, no rules by quantity can be given, as a bushel of some tomatoes will yield twice as much pulp as others. The evaporation should go on over a slow fire, being careful not to scorch it. When thick enough to pour from a cruet, without inconvenience, add salt and spices. Here the recipes give the greatest possible variety. Be sure and use salt enough; a chopped onion, or clove of garlic, tied in a cloth and cooked in the pulp, to give *just a suspicion* of the flavor, is liked by many; Allspice, Black Pepper, Cayenne, and Mustard, are the principal spices, and are used according to the taste of the consumers. One recipe directs for a half bushel of tomatoes; Cloves, two teaspoonfuls, Cinnamon, Allspice, and Black Pepper, two tablespoonfuls each; these are not to be ground, but bruised, placed in a little bag and boiled in the pulp while it is being evaporated; when the pulp is thick enough, remove the bag and add Mustard, ground, two tablespoonfuls; Cayenne Pepper, two teaspoonfuls; good Vinegar, two quarts, and salt to the taste. Another recipe uses all ground spices, viz.: For the pulp from ½ bushel of fruit: Allspice and Cloves, ½ oz. each; Mustard, 1½ oz. Black Pepper, 3 oz.; Mace, ½ oz.; Cayenne, ½ oz.; Salt, 6 oz. or sufficient, and Vinegar, 2 qts. Add the spices, boil a minute or two, cool, and bottle.

Cucumber Catsup.—This recipe, given several years ago, is republished by request. Take overgrown cucumbers, before they turn yellow, peel, and grate on a very coarse grater. Allow the pulp to drain on a colander, then sift through a coarse sieve to separate the seeds. Half fill wide-mouthed bottles or preserving jars with this pulp, and fill up with good vinegar. When served, add salt and pepper. It has precisely the odor and flavor of fresh cucumbers, and makes an acceptable accompaniment to cold meats. In our first attempt at making this, finding no grater coarse enough, and having a large cover which had outlived the wash-boiler to which it belonged, using a large nail, we converted this into a grater, which, if not handsome, was efficient.

Lasell Seminary, Auburndale, Mass., presents features too seldom found in educational institutions for girls, in being especially strong in those branches of study bearing on domestic life. The practical methods of training adopted, are spoken of in high terms by people familiar with the working of the school.

Pasturing Grass Fields, especially newly-seeded stubbles, is a bad practice, and recognized as such by most good farmers in this country. In other not freeze hard, it may do no harm, indeed be a positive benefit to graze fattening animals on grass fields, as then there is no danger of damage by frost, and the droppings of the cattle serve to enrich the land. But in the colder regions, the grass roots want all the protection from regions, the grass roots want all the protection from frost that the uncut aftermath provides. Instead of feeding such lands, particularly those newly seeded, it is more profitable to fertilize them, either with a fine compost or some artificial fertilizer. Fall applications of manure strengthen and multiply the grass roots, and put the plants in a vigorous condition to withstand the winter, and for an early start in spring. All fertilizers should be applied to grass as early in the season as possible—better immediately after haying—so that it may be used in this season's growth. If not applied until late, much of it may be wasted by leaching in light soil, and washing away on heavy lands. It is said above that fattening cattle only were suitable for grazing grass fields. This is because that in the production of fat none of the elements of fertility—save those supplied in abundance by nature—are taken from the land, all of these being returned in the fæces. But a growing animal takes large amounts of phosphates for its bones, and of nitrogen for its muscle; and a milch cow takes phosphates for her milk; both take some potash. This fact should always be remembered, that mature fattening animals do not deteriorate the land, while growing animals and milch cows draw on its fertility.

Mistakes About Goats.—"W. H.," Watertown, Mass. Goats do not have kids four times a year, nor two or more at a birth. All hope of profit or fortune from such increase as that will have to be abandoned. Goats increase the same as sheep, and are no more prolific.

Packing Butter for Winter.—"Mrs. V.," Summit Park, Col. To pack butter for winter, begin when the weather is cool, and the butter can be kept hard. Free the butter from milk by repeated washing with cold spring water. Salt at the rate of one ounce to the pound, and set the butter away for 24 hours. Then re-work, getting all the milky brine away, and add one-fourth as much salt as before, to replace the waste. Then pack closely in layers two inches thick in clean, new, white oak tubs or pails, which have been scalded and soaked in brine. When the tub is full to the top, cover the butter with a piece of muslin dipped in cold water, and cover with salt. Fasten the cover, and put away in a dry, cool cellar.

Exports and Imports.—The family that produces and sells more than is bought, is growing richer. So with a nation. The official reports for the fiscal year up to July 1st, shows that this country sent abroad of its products to the amount of $352,049,639, while it imported only $285,757,455—a gain to us of $76,292,184. The export of our products, exclusive of specie, were $51,327,700 greater than for the year ending July 1, 1877, and $77,808,842 greater than for the year ending July 1, 1876.

The Colorado Beetle.—Experience shows that we have this enemy in our power, if we only make use of the simple means at hand for putting an end to him. In many localities the beetles and larvæ are but few in number, and the potato vines are strong and vigorous. For these reasons we hear farmers say, "the beetle is doing no harm, it is not worth while to bother with him." So the pest is left to gather force for another year. If every one possible were destroyed, but few would go into winter quarters, to appear next season. While the beetles are thus reduced in numbers, we may effectively prevent them from doing much harm next season, by poisoning all of the late brood wherever they may be found. This is a duty every man owes the community, and no one should be so selfish or unmindful of other's rights, or convenience, as to neglect it.

The American Agriculturist in Japan.—S. Tsuda, Editor of the "No-Glo Lashi," the Japanese agricultural journal, mentioned some months ago, writes: "Let me assure you that your paper has been of great benefit to the Japanese.... It is my great desire to make the "No-Glo Lashi" to Japan, what the *American Agriculturist* is to America and the rest of the world."

As to Sowing Wheat.—"T. S. C. H.," Essex Co., Mass. Very full directions for sowing wheat will be found in the monthly "hints for work." The soil must be well drained, or wheat will not thrive, and it will be liable to be heaved out by frost and winter killed. The Clawson wheat is now very popular. Wheat straw is of little value for feed, without a generous mixture of ground grain and roots, say corn and turnips; but neither of them is good for growing and fattening animals.

Information About Poultry.—"B. C. E.," Port Robinson, Ont. It would be misleading to give estimates of what can be done in poultry raising without knowing all the facts in the case. General information can be had from the following books: "An Egg Farm," by Stoddard; "Wright's Practical Poultry Keeper," and "Poultry Farm and Market," by Corbett.

American AGRICULTURIST.

NEW YORK, SEPTEMBER, 1878.

Agricultural Notes from Channel Islands.

From our Special Correspondent.

Jersey, Guernsey, Alderney, and Sark, lying just off the coast of Normandy, France—mere rocky isles, sprinkled about with hundreds of lesser rocks—are the so-called Channel Islands, dependencies of Great Britain, but not colonial possessions, and these together constitute one of London's most noteworthy kitchen-gardens, though three of them are known in America mostly for their cattle.

Potatoes are Jersey's great specialty, the season for which extends from the latter part of May to the middle of July, and a special potato steamer leaves St. Heliers daily for London. Guernsey's specialties are grapes, plums, figs, pears, cut flowers, including camellias which flourish in the open air, and fresh fish. Sark supplies fish and rabbits, and the little island of Herm, rabbits, and vraic or sea-weed. The rabbits live among the furze, and are bred in immense numbers. During a recent season one boatman carried 7,000 from Herm to the Guernsey market, where they were sold for 10 pence (20 cents) apiece. Meat, with the exception of rabbits and chickens, is scarce in Sark and expensive, and milk brings 4 pence (8 cents) a quart; butter, 1*s.* 6*d.* (37 cts.) a pound; eggs, 1 shilling (25 cts.) a dozen; and a six-pound loaf of wheat-bread, from 1 shilling 3 farthings to 1*s.* 2*d.* (26 to 29 cts.).

Jersey produces a remarkable variety of cabbage, called the "Jersey Cow Cabbage," which grows to the height of four to six feet, and is cultivated for fodder. The stalk, which is tall and straight, is often made into walking sticks; this, when smoothed off and varnished, is similar in appearance to a bamboo cane, and most travellers who visit the island carry away a cabbage walking stick.

There is an old proverb current in the Channel Islands: "*Point de vraic, point de hautgard!*" which, being translated, means: "No sea-weed, no wheat-field!" Vraic is the local name for the sea-weed, which grows in immense quantities along the rocky shores, and which is used for manure. The season for gathering it is limited by law, and extends, I believe, from Feb. 1 to August 15. The live weed is torn from the rocks, and heaped upon the beach to dry, after which it is conveyed by carts to the fields. A vraic cart, drawn by a yoke of oxen and one or two pair of horses, followed by the farmers with their hooks and forks, is a picturesque sight. Below is an illustration of such a team; it shows the peculiar cart and an odd form of yoke, which is a straight piece fastened behind the horns, with a straight rod extending half down each side of the neck, and a cord underneath, to serve as a bow. The number of men to each team shows an abundance of labor, which would hardly be economical in America. The price of Herm vraic, delivered in Sark, is from five to six shillings per ton, and it requires from 23 to 25 shillings' worth ($5.50 to $6.25) to manure an English acre.

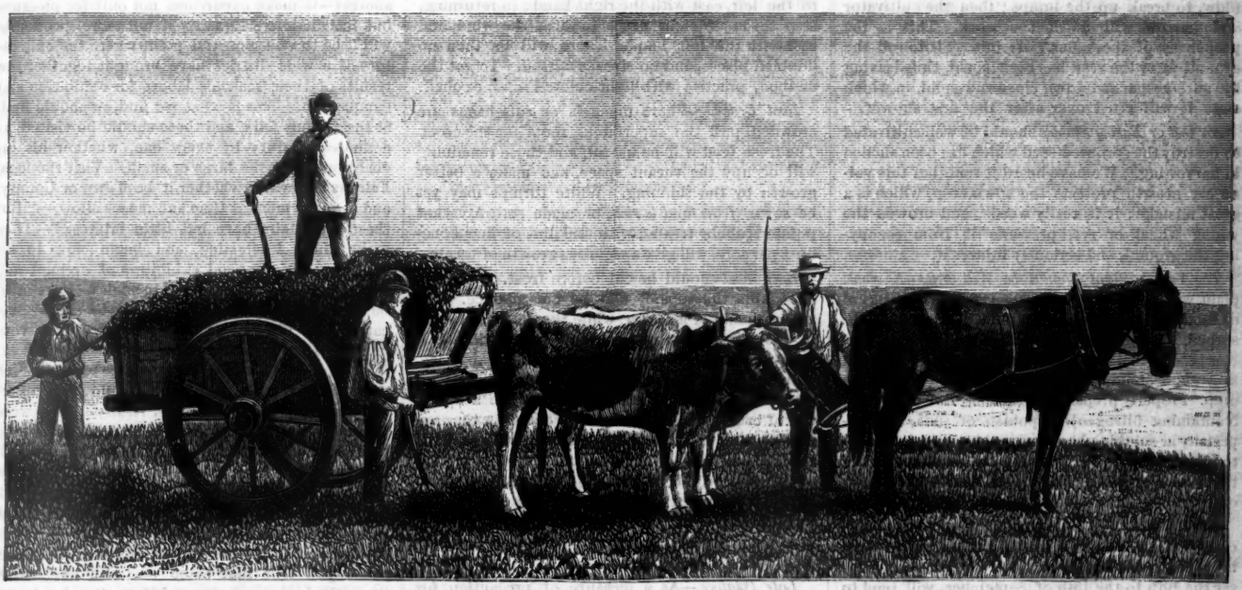
Over 100 tons of grapes will be shipped from St. Peter Port, Guernsey, to London, this season. Hamburghs and Muscats are the chief varieties, and these are raised in greenhouses without artificial heat. We visited one vinery comprising 11 greenhouses, which will produce this year over four tons. Several hundred weight have already been shipped to London, where they brought from 2*s.* 6*d.* to 3*s.* 6*d.* (62 to 87 cts.) per pound, wholesale, and at this time they retail in London from 5 to 8*s.* per pound. The vines are placed about one foot apart, and are trimmed close, allowing the sunshine to enter freely. While green, the berries are thinned very severely at two different periods, consequently the berries are very large, perfect in shape, and highly flavored. Most of the plants that I have seen were remarkably healthy, but the red spider is common in the Guernsey vineries, and does much injury. Keeping the leaves abundantly showered with water, though it is but partially effective, is considered the only feasible remedy.

The farms in these Islands are, without exception, small, the dairy work generally managed by women, and the implements and mode of work simple, even primitive. Much of the work is also performed by women, who receive a franc or a franc and a half (20 or 30 cts.) per day. I saw no cattle market. The industry for which the Islands are specially noted abroad—cattle breeding, is mostly controlled by an agent in England, who takes orders from foreign stock fanciers, which he refers to local dealers in the Islands who are good judges of cattle. In the Channel Islands, one hears little of "Alderney" cows; Jerseys and Guernseys are the two standards, and they differ widely in their characteristics. The Jerseys resemble the cattle of Brittany, from which they are said to have been bred. They are small, symmetrical, and with graceful proportions; they have deer-like heads, and are generally mouse-colored, with black points, and always black snouts. Alderney has given its name to a breed of cattle, but comparatively few are exported. The Guernseys are said to have been bred up from the Alderneys, to which they are similar in color and physique, but the Guernseys are generally larger and finer, and give more milk. The Guernseys are larger than the Jerseys, and in color are usually reddish-yellow and white, often curiously spotted with white, and have uniformly yellow skins. They give more milk than the Jerseys, and the butter is higher colored—indeed, so marked is the yellow hue that it is wrongly supposed by strangers, that Guernsey butter is artificially colored. Another important advantage claimed for them over the Jerseys is that they can be fattened for beef after having served their time as dairy cattle.

Pasture land is scarce and expensive. Grass must be economized, so all the cows are tethered. By this means their rations are given in known quantities, and they make the most of what comes within the scope of their tethers, instead of wandering about picking up the daintiest morsels and trampling down the rest. They are generally much petted, and are as docile as kittens. Singularly enough, considering the affection of their owners for them, they are seldom given proper names. In conversation, they are distinguished by such phrases as "the old cow," or "the big cow," or "the last calf." Some of the prize Guernseys give 20, 24, and even 28 quarts of milk per day. In Guernsey, during summer, the cows are generally milked at morning, noon, and night. The milking is usually done by women. No calf is allowed to be sent from Sark to the neighboring islands without a certificate from the Seigneur (the Lord of the Manor), giving a permit, and stating the animal's pedigree, nor from the other islands without a similiar document from the proper authorities.

"La Grande Charrue" (the Great Plow), is an institution in Guernsey. It is used for deep plowing, and is large and clumsy. Several farmers club together to use it—the team being made up of all the oxen and horses which the party can muster. The Great Plow is frequently honored with a team of four oxen and six or eight horses, or two oxen and ten or twelve horses, making quite an imposing turnout. After each day's plowing, the farmers who have taken part, hold a festival in the evening. Some of the small plows in common use are awkward in the extreme, resembling one of our ordinary one-horse plows; but, between it and the team of two horses, a low-wheeled carriage-part with pole is introduced, by which means the plow is removed far from the horses, half of their force being expended in lifting the carriage, which is below the line of traction; and were the strength of the team sufficient, I should expect to see the two wheels dangling in the air

Sark, July 15th, 1878. G. W. W. H



COLLECTING SEA-WEED FOR MANURE IN THE CHANNEL ISLANDS.

Hints for Work.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

Wheat and Rye.—Sowing the fall crops is the principal work of this month. It is useless to expect a good harvest unless the sowing of the seed is well done. There are several points to be studied:

The Fitting of the Soil is of the greatest importance. Wheat requires a fine mellow soil for the seed, and a light soil to be well compacted about the sowed grains. If any vacant places are left, as would be were the soil cloddy, the rootlets being exposed to air, will dry and perish. Therefore, after plowing, cultivate, or harrow repeatedly until all the clods are made fine.

The Surface Soil may be lumpy and somewhat rough, but the lumps should not be so large as to prevent the spires of wheat reaching the surface.

The Roller Should be Used immediately after the plow, to break up the lumps; then the cultivator and harrow will finish the work. This is the proper use of the roller. Its misuse is to roll the ground after the seed has been sown, thus leaving the surface packed down close and solid, in which state it will crust over after the first shower.

An Oat or Barley Stubble should be well cultivated to destroy the sprouted seed which has been shelled in harvesting. We have heard it said that this volunteer growth protects the sown crop, which is a great mistake: it is really weeds, and crowds the young wheat or rye, prevents it from occupying the ground, and seriously injures it.

The Young Plant Should be Well Fed.—A weak plant will fail unless it has plenty of the right kind of food, and in such a condition as to be readily absorbed, digested, and assimilated. Thoroughly decomposed stable manure furnishes such food, and is a good stand-by for the entire growth of the crop. Properly prepared fertilizers—rich in nitrates (containing nitrogen) of potash or soda, and especially in soluble phosphoric acid, which is known to have a remarkable effect on the development of the young rootlets—may be used with safety and comparative certainty.

The Hessian Fly has done much damage, especially to barley. The spring brood seems to have been the most injurious. Late sowing, that is after the 10th to the 15th of September, will tend to prevent the effective deposit of eggs, and thus greatly lessen the number and vigor of the spring brood. Although by forcing the early sown wheat to a strong growth, it can be secured against the fly, yet we thereby furnish breeding places for insects whose progeny will attack the oats, barley, and wheat next spring.

Selecting Seed.—When it is inconvenient to attend to the selection of good seed, it is profitable to pay double or treble the market price for grain to a farmer who *will* take pains to grow nice, clean seed of the best varieties, than for a farmer to go to his own bin and take the seed as it comes, good and poor, with many foul seeds in it. A farmer who sows poor seed may save a dollar per acre, but he will lose ten for every one saved.

Cultivating the Fall-sown Crops.—It will be found decidedly beneficial to use a sloping-tooth harrow soon after sowing, and before the spire shows above ground, and again as soon as it has become well rooted. A harrow of the kind referred to was described in the *American Agriculturist* for August. After having tested this harrow, we find it to do excellent work with both sloping and straight teeth. It is light and passes easily over the loose ground, disturbing only the surface and killing only the shallow-rooted weeds, leaving the wheat uninjured. The loosening of the soil benefits the wheat, and prepares the ground for the timothy seed.

Harrowing Disturbs the Hessian Fly.—Doubtless this is because the wheat is pushed forward by the stirring of the soil, and many maggots are certainly destroyed.

Steeping the Seed.—For at least the partial prevention of rust and smut in wheat the seed should be steeped in a strong solution of common salt, or in a solution of 4 ounces of sulphate of copper (blue vitriol, or copperas) in a gallon of water, for one hour. The seed is then drained and sprinkled with dry lime, when it may be sown immediately.

Water Furrows.—When all else is done, make the necessary water furrows *at once*. There may come a heavy rain the next day and do damage. Disperse the water into several channels, rather than permit it to collect in one or two. When the field is in grass, these water furrows will be useful in spreading the rain more evenly over the field.

Seeding to Grass.—It is a good practice on fertile soil to sow grass-seed two weeks after the wheat is put in. Thrifty growing timothy keeps the wheat back, as proved the past season on the writer's field. Other farmers corroborate this experience.

Sowing Right and Left.—After waiting two weeks for a still day the past spring to sow clover, the writer tried sowing with the right and left hand alternately, and it answered well. The method is this: With the wind blowing from the right over to the left, cast with the right hand; in returning, step seven or eight paces towards the wind, and cast with the left hand. There will be then no doubled places, and no streaks missed. To get the method, practise with light-colored sand, or chaff.

Root Crops.—Where mangels or ruta-bagas are crowded, pull the superfluous roots for the cows. The fresh feed will be useful, and those remaining will occupy the vacant space, and make a better growth by the thinning. White turnips may yet be sown *if the land is rich*, or made so. A vacant potato stubble treated with 250 lbs. of fine bone-dust per acre, will give a vigorous growth of turnips.

Buckwheat should be cut before frost. If a light frost kills the tops, it may be cut at once. Cut with a cradle or a reaper, while the dew is on, early in the morning, otherwise the grain will shell badly. Leave it in the swath until the straw is dry, then rake into gavels, which, without binding, set into small stocks, where they will dry in a day or two of bright, breezy weather. Then draw the crop to the barn in racks upon which barn sheets or blankets are spread, to catch the shelled grain, and thrash at once. If a machine is used, the concave should be removed and a piece of plank substituted, or the teeth will break the grain. When thrashed it should be cleaned immediately, and carefully stored, as it is apt to heat.

Late Potatoes.—As a measure of precaution for next season, every potato-beetle that can be found should be destroyed. When the leaves are eaten from potato vines, the growth of the whole plant stops; if new leaves start, it is at the expense of the tubers. So, kill the beetles, and increase the crop.

Corn.—As soon as the grain is glazed, corn should be cut, if the stalks are to be saved. Frost greatly injures the fodder, and reduces its feeding value. Before cutting, the seed for next year should be selected, taking ears from stalks that have borne two or more good ones. The tops of the selected stalks may be broken down, to mark them, and when the crop is cut, left standing until the ears are perfectly ripe, then they should be gathered, and stored in a dry, cool place. Such selections of seed will tell well in the next crop.

Weeds.—A great number of weeds are now maturing seeds; to permit this is simply to make trouble and expense, in years to come. Every weed about fence-rows, in fields, or about barns, and in nooks and corners, should be cut at once, and burned. By persevering in this way for a few years, a farm may be cleared of these fertility thieves.

Live Stock.—For hints about the management of farm animals refer to the August *American Agriculturist*. We will only add that, as cold weather is approaching, any falling off in condition should be guarded against. Extra feed may be given this month to young animals, with profit.

Sundry Matters.—This is the usual season for renewing insurances, and it ought not to be overlooked. The farm buildings, tools, and crops, should be secured so that in case of fire all will not be lost. ....Preparations should be made for storing the root crops; a substantial, permanent root house will always repay its cost, and a good one may be made very cheaply....All the harvesting implements and machines should be cleaned and oiled—both wood-work and iron—and stored in a dry, covered place. To remove rust, use crude petroleum, then brush over linseed oil. Petroleum is a good preserver of wood.....Chicken coops and other "traps" put away until next season, in an outhouse, or shed. ....Clean up all rubbish about yards and buildings, and remove to manure heaps—having all possible materials for compost gathered and utilized....The sum of the small things which may be done with economy now that leisure offers opportunity, will be considerable....Do not overlook the Fairs, and make a business of attending as many as possible, with observant eyes to things of interest and utility.

Notes for the Orchard and Garden.

A few months ago we suggested that it was a profitable use of time for cultivators to visit one another—to make excursions not only for pleasure but instruction. Equally, if not more, profitable will it be to visit a central point where the cultivators of a wide district have brought together the results of their season's labors for exhibition and comparison. This is what we find, or should find, at the various fairs, and these should be visited, as a matter of duty by every one, whether his orchard or garden be large or small. Visit the local Fair by all means, whether it be Town or County, and as many more as time and means allow.—"But these local fairs have but little interest."—Then make them interesting, and begin now to set about insuring a good exhibition of orchard and garden products. Some one in such matters must be a leader or agitator. Many fail to exhibit, because they did not think of it. See that your neighbors have not this excuse. Others would exhibit if they thought any one else would.—Tell such that you will exhibit if they will. Still others can be stirred up by a spirit of rivalry. Send word to such that you intend to beat them on grapes, turnips, or whatever the special hobby may be. It is astonishing how much one person, by a few timely words, can make the Horticultural Department of a fair a success. Who can better speak these words than the readers of the *American Agriculturist?* Do not refrain from exhibiting because you fear that some one else has better. Show the best you have, and if another has better of the kind, learn how he produces it. No matter if you are a Vanderbilt in wealth, and the premium awarded you is only 50c., *take the money.* This declining premiums by wealthy or well-to-do persons, touches the pride of those in humble condition, and they stay away. We have known a flourishing society nearly ruined by this, as it drove away the mechanics and others with small gardens. Wealthy persons do well when they make presents in cash to such societies, but they should always take their premiums. What ever is shown, let it be arranged to appear at its best. There are neat and slovenly ways of showing cabbages. Go to the fairs by all means, but go with something to exhibit, and be sure to take wife and children besides.

Orchard and Nursery.

In these notes on work are included answers to many correspondents, though this is seldom stated. Just now, as in past years, many ask about

Fall Planting.—The answer will depend much upon the locality of the inquirer. Other things being equal, the better condition of the soil, the greater comfort in working, insuring better planting, and the less pressing character of other work are all in favor of fall planting. Besides these, the trees having become established in the soil, start much earlier in spring, and are thus better prepared to resist the summer drouths than those set in spring. In far northern localities, in which there is but a brief period between the time when trees can be taken up, and the setting in of winter, spring planting is preferable, but where there are some weeks of autumn weather, it is better to

plant all but the stone fruits in autumn. In autumn planting it is well to make

A Mound of Earth around the base of each tree, from 10 to 15 inches above the general level. This serves to keep water from settling at the roots, and protects them from frost, helps to keep away mice, and serves as a stay or support for the tree in a much better manner than staking. The earlier trees are planted, after they have completed their growth and ripened the wood, the better.

Stripping the Leaves from nursery trees is regarded by many as improper, but if done at the right time there is no objection to it. When the leaves have done their work they are of no further use to the tree, and will fall in a heavy storm or with the first frost, and no more injury will result from stripping them off by hand than if they were left to be removed by natural agents, provided it be done when they are fully mature and prepared to fall. Stripping, properly done, allows the trees to be set out some weeks earlier than otherwise, in the fall. If left on, the trees would be difficult to pack; there would be danger of heating in the package, and if the tree were planted with the leaves on, they would carry on an evaporation that would greatly injure if it did not kill it. See hints on

Gathering and Marketing Fruit in last and previous months' Notes. Windfalls should not be wasted; they may be used for vinegar, for drying, or be fed to the pigs. Those who have large orchards find it profitable to provide a hand-press to treat windfalls as they occur, long before the general pressing, and materially increase the amount of vinegar.

Propagating.—Budding may be continued so long as the stocks are in growing condition; cut the ties of those buds that have taken. Collect peach and plum stones, and keep in sand until sown.

The Fruit Garden.

The reasons given for fall planting in the orchard, hold with the hardy small fruits and dwarf trees in the garden.

Strawberries.—Keep the beds entirely free from weeds, and remove all runners not needed. Planting was discussed last month, and an article giving useful hints will be found on another page.

Blackberries and Raspberries push their growth so early in spring, that fall planting is especialy desirable for them. If not already shortened as directed last month, do it now. If it is desired to propagate *Black caps*, and other varieties that root from the tips, branches should be left uncut for the purpose; while they often take root without help, it is well to make sure by placing earth on the ends of the canes, to hold them in place.

Currants and Gooseberries may be pruned when the leaves have fallen, or will drop at a slight touch. Cuttings of this year's growth should be set at that time; make them 4 to 6 inches long, and set 4 inches apart in rows, with one bud above the surface. Cuttings set this month, or early next, will usually be well rooted by winter.

Grapes.—In gathering, use scissors made for the purpose, which hold the bunch after it is severed, and avoid the necessity of handling, which, by removing the bloom, greatly injures their appearance and consequently the sale. Gather in trays or shallow boxes and keep in a cool, airy room for a few days, until the skin toughens somewhat.

Packing Grapes.—For immediate sale, or later to keep, wooden boxes of thin stuff, to hold 3 or 5 lbs. are preferred, though some growers use paper boxes. The bottom of the box is removed, and the grapes laid in, handling only by the stems, and enough put in to make it necessary to use slight pressure to bring the bottom to its place—which the curing or exposure, by toughening the skins, makes possible without cracking the fruit. See last month on mildew.

Pears need careful watching that they may be picked as soon as they mature; with some varieties, a delay of a few days will cause loss by decay at the core. Whenever the stem of the fruit parts readily from the branch, the pear should be picked, no matter how hard, and ripened in the house. Select specimens are sent to market in shallow boxes holding but a single layer, each pear wrapped in white or colored tissue paper. Pruning to bring the tree into proper shape may be done now.

Kitchen and Market Garden.

Now that the cool nights have come, the late crops will be making a rapid growth not possible when both nights and days were hot. But cool nights are equally favorable to certain weeds, and there can be no relaxation of vigilance with these.

Clear up as you go.—When a crop, large or small, is taken off, clear up at once the refuse, and if the land is not needed for any crop, keep the weeds down by running the cultivator over it whenever that is used among the crops.

Cold Frame Plants are to be provided for. Those who are only used to the old fashioned way of gardening, which began with spring and ended with fall, do not understand that the earliest cabbages, lettuee, etc., are from seeds sown the fall before, the plants kept through the winter in cold frames, and set out in early spring. There is nothing about this that can not be done by any farmer or other person who will take the needed pains. We will describe the frame in due time; the seed for the plants must be sown this month. In order to have them of the proper size, gardeners, about New York, make two sowings, on the 10th and 15th of this month. Farther North the sowing is earlier, and in more Southern localities, later. The seeds of the Early Cabbages, Cauliflowers, and Lettuce, are sown in well prepared seed beds, and cared for the same as when sown in spring.

In Virginia and Southward, cold frames are not needed, but the plants are protected by ridges as will be described another month; the seeds for these, are sown the later part of this month, or early next, according to locality.

Celery should be making a good growth, which should be favored by frequent stirring the soil. If early celery is needed, some of the most forward may be straightened up, having the earth drawn to it with the hand; in about a week it is banked up with earth to half its hight; and in another week banked again. It should be used as soon as blanched (which requires 10 days or so), as it soon becomes hollow if earthed up while in the growing state.

Corn.—As fast as the ears are taken from a planting, cut up the stalks to cure, if not fed out at once. During its abundance, dry a supply for winter; see note on page 287, last month, on preserving with Tartaric Acid.

Borecole, Kale, or in the New York market "Sprouts," is sown early this month. It is merely a kind of cabbage that does not make a head. Some varieties are quite ornamental, having handsomely curled and fringed leaves; sow the seeds in rows 15 inches apart; thin to six or eight inches, and keep clear of weeds until winter, when it is to be covered with straw, and may be used in spring.

Spinach for next spring is sown in the climate of New York, between the first and middle of the month. Sow in drills 15 inches apart, and keep clean; thin to 6 or 8 inches, using the thinnings.

Corn Salad is treated the same as Spinach, and is used in spring, mainly by Europeans.

Sweet Potatoes.—Prevent the vines from taking root by moving them occasionally.

Turnips.—The flat kind may be sown; Rep-top Strap-leaved is best, and will usually make a good crop, if sown as late as the middle of the month.

Melons.—Remove all that are not likely to ripen; the small musk melons may be used for "Mangoes," or stuffed pickles, if desired.

Shallots.—A hardy onion, which is ready for use in early spring, may be set, using the small bulbs.

Seeds.—If seeds are saved, they should never be from the leavings of a crop, but the finest and earliest plants or fruits selected in advance, and so marked that they will not be taken for use. If several varieties of melons, squashes, and others of the family, of corn, etc., are grown in a small garden, it is of little use to save their seeds, as they will be so mixed that only mongrels will result.

Radishes.—Those who like radishes in winter, may sow the Chinese Rose-colored Winter, and treat and keep it the same as turnips.

Et Cetera.—Cucumbers, Martynias, Green Tomatoes, String Beans, etc., should be gathered while young and tender, and salted as stated on page 345.....Make Catsup while Tomatoes are plenty ....Use ripe Cucumbers for Cucumber Catsup. They may be peeled, sliced, dipped in batter and fried like egg plant....Lastly, weeds.

Flower Garden and Lawn.

Now that the hottest days are over, an increased growth of grass will require a more frequent use of the mower. On new lawns the "Finger" or "Crab-grass" (*Panicum sanguinale*), is often abundant, especially the first year; fortunately it is only an annual, and if kept from seeding it will give but little trouble hereafter.

New Lawns may be made; grass sown this month, or, in the warmer States, next month, usually gives good results; and where the season is favorable for it to get well established before growth ceases, fall sowing is to be preferred to spring.

White Grub in Lawns.—A friend near Boston, whose extensive lawns have been models of excellence, writes that the white grub has been so destructive that some acres of turf are destroyed, the roots being eaten off just at the surface, so that the grass may be rolled up like a carpet. We have known of similar trouble, but not on so extensive a scale. The work is done so thoroughly that there are not roots enough left to allow the grass to recover if the turf were rolled, to bring it in close contact with the soil, and kept moist by watering, for which he has ample facilities, and there was nothing to be done but to make the lawn anew.

Is the Grub increasing in numbers? is a serious question for cultivators of all kinds, for there are but few plants, including young trees, that are not attacked by it. If it is not on the increase, it is noticed more closely, as we hear more of it of late than in former years. It is, as most readers know, the larva of the May or Dor-bug, and lives three years in the ground. As its presence is not suspected until the mischief is done, we can only make effective war against it in the perfect or beetle state. When discovered in large numbers on trees, the beetles should be caught by nets or otherwise, and as they are readily attracted by light, traps with a lamp for a "bait" must be devised.

Herbaceous Perennials.—For many of these, fall is the best season for transplanting; a few, like the Pæony, will not bloom the same year if moved in spring, hence these must always be transplanted now, unless we would lose a season of bloom. All the early bloomers, if set in the fall, will become well established and flower well next spring.

Bedding Plants.—Geraniums and such plants should now be at their best. If a stock is to be kept over winter, make cuttings for the purpose.

Chrysanthemums.—Those wanted to flower indoors, should be potted when the buds show, and shaded for a few days until they recover. Provide the tall growers with stakes, and keep them tied up, else they will be broken by storms.

Cannas.—Some of these are as desirable for their flowers as for their foliage; prolong the bloom by cutting away the stalks as soon as the flowers fade, unless seeds are wanted.

Dahlias need careful tying, and the larger branches may need separate stakes; the stems break readily; the flowers are heavy, especially when wet, and unless well cared for, they will be wrecked just when they should be most showy.

Ornamental Trees and Shrubs may often be advantageously transplanted in autumn, for the reasons mentioned under Orchard. Many prefer this season for the removal of Evergreens; success with these depends quite as much upon *how* as upon *when* it is done, the greatest care to prevent drying of the roots being essential at any season.

Greenhouse and Window Plants.

All plants in pots should be in the condition of an army waiting orders—ready for a move at any

minute. If houses and all their belongings are not in readiness, there is now no time to be lost.

Soils, Pots, and whatever other materials are likely to be needed, should be at hand under cover.

In bringing in Plants it is best to do it before a cool spell makes it necessary, as they can be examined and cleaned of insects if need be. Begin with the most tender, and bring them in gradually. House plants should not go to their quarters in the living-room at once, but be placed in a room where the windows can be left open all night, if need be, and thus gradually accustom them to confinement.

Seeds of Annuals for winter bloom may be sown now, and other sowings made later; Candytuft, Sweet Alyssum and Mignonette, are always in demand for cut flowers.

Hanging Baskets may be filled and furnished, and kept on the veranda until time to take them in.

Plants in open ground, such as Carnations, Tea and other roses, and others, expected to flower in winter, should be taken up and potted, and kept in a shady place until they recover.

Slight Frosts sometimes occur before the plants can be taken in; these may prevented from doing damage to even the very tender plants by covering them with a sheet; even a few newspapers over the plants so secured that they will not be blown away, will answer the purpose.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist,* from our daily record during the year, show at a glance the transactions *for the month ending Aug. 12th,* 1878, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
RECEIPTS.	bbls.	bush.	bush.	bush.	bush.	bush.
27 d's *this* m'th	361,000	4,647,000	4,381,000	251,000	294,000	1,213,000
25 d's *last* m'th	382,000	4,904,000	3,962,000	490,000	261,000	1,137,000
SALES.						
27 d's *this* m'th	458,000	6,239,000	6,411,000	437,000	——	1,507,000
25 d's *last* m'th	476,000	6,518,000	5,151,000	570,000	98,000	1,956,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
27 days 1878	361,000	4,647,000	4,384,000	251,000	294,000	1,213,000
27 days 1877	221,000	2,476,000	2,931,000	67,000	206,000	1,042,000
SALES.						
27 days 1878	458,000	6,239,000	6,411,000	437,000	——	1,507,000
27 days 1877	383,000	2,906,000	6,113,000	357,000	163,000	1,296,000

3. *Exports from New York, Jan. 1, to Aug. 12.*

	Flour. bbls.	Wheat. bush.	Corn. bush.	Rye. bush.	Barley. bush.	Oats. bush.	Pease. bush.
'78	1,508,205	27,101,173	18,239,911	2,564,907	1,515,149	2,086,031	306,112
'77	712,768	5,252,059	14,676,357	896,034	748,855	102,618	170,337
'76	1,164,721	11,575,520	8,844,000	691,000	28,100	302,000	155,987
'75	1,129,041	14,650,208	7,225,593	120,463	165	75,147	229,590
'74	1,953,480	24,290,750	14,513,411	531,091	330	72,311	253,8 3
'73	791,998	9,728,612	7,669,255	327,920	19,226	20,839	92,496
'72	547,794	5,179,949	14,572,823	510,678	24,696	29,706	123,93
'71	1,085,079	10,556,658	6,341,032	71,399	81,797	16,764	——
'70	1,069,227	10, 36,357	220,647	65,731	——	11,205	——
'69	812,764	9,099,803	1,537,077	72,811	——	42,727	——
'68	575,091	3,209,201	4,903,872	158,073	——	40,643	——

4. *Stock of grain in store at New York.*

	Wheat. bush.	Corn. bush.	Rye. bush.	Barley. bush.	Oats. bush.	Malt. bush.
Aug. 12, '78	1,126,813	598,736	62,647	204,224	472,366	137,008
July 11, '78	1,591,132	739,784	188,813	174,000	207,769	663,075
June 10, '78	1,487,700	616,623	148,989	197,507	608,153	288,285
May 7, 1878	748,196	263,020	75,229	207,576	570,293	258,327
Apr. 15, 1878	1,370,081	541,648	106,375	396,861	857,273	253,424
Mar. 11, 1878	1,639,371	470,484	114,300	660,145	1,090,897	275,705
Feb. 11, 1878	1,674,035	774,470	208,816	831,673	1,415,633	318,079
Jan. 10, 1878	2,586,715	105,960	286,353	913,898	1,087,985	321,474
Dec. 10, 1877	2,941,982	1,724,429	399,077	864,787	1,879,032	358,869
Nov. 5, 1877	954,574	2,643,502	166,949	366,429	1,170,159	328,388
May 7, 1877	761,686	468,809	193,046	174,375	317,841	291,654
Feb. 7, 1877	3,083,819	2,302,261	374,142	671,114	956,114	388,605
Jan. 8, 1877	3,668,010	3,077,504	341,750	905,615	1,088,104	423,406
Dec. 11, 1876	3,110 283	3,385,574	218 811	873,310	1,182,322	512,041
Apr. 10, 1876	3, 93,054	232,140	68,429	200,381	706,282	436,942
Jan. 10, 1876	5,302,293	653,983	100,741	325,191	1,080,300	307,488

5. *Tide-water Receipts at Albany, from opening of navigation to Aug. 7:*

	Flour. bbls.	Wheat. bush.	Corn. bush.	Rye. bush.	Barley. bush.	Oats. bush.	Malt. bush.
1878	3,100	9,856,000	10,114,000	7 5. 0	3 4,000	2,221,000	197,000
1877	3,100	1,554,700	8,385,100	192,900	389,700	940,300	277,500
1876	18,700	7,597, 00	2, 6 ,000	327,000	114,500	1,791,200	365,500
1875	27,200	7,5 ,600	1,992,200	68,700	——	1,023,200	456,500
1874	85,100	11,590,0 0	9,795,200	189,800	74,000	1,216,700	356,200

Gold has been up to 100¾, and down to 100⅜, closing Aug. 12, at 100⅛, as against 100⅜ on July 13; 100⅞ on June 13; 10 ¼ on May 13; 100¼ on April 17; 102½ on Jan. 12; 103 on Dec. 12; 102⅝ on November 12; 103 on October 12; and 104⅞ on July 12, 1877....An active business has been reported in Breadstuffs, mainly for home use, and export, but to an important extent also on speculative account. Prices have fluctuated frequently and widely, influenced chiefly by the unfavorable tenor of the domestic crop and weather reports, and the use made of these to promote speculative interests, especially in the Milwaukee and Chicago markets, where Spring Wheat has been ruling much higher, relatively, than on the seaboard, thus impeding the onward movement. Receipts of Grain, however, have been recently on the increase at the more prominent points of accumulation in the interior—notably so of new crop Winter—and more liberal also at this port. Toward the close, the general market here has shown more firmness, with a rather confident inquiry for shipment, chiefly for Winter Wheat, steamer and sailing vessels grades of Corn, prime Rye, and No. 2 Chicago Oats. Home trade requirements have been fair, though, as a rule, not very urgent. Spring Wheat Flour has been advanced sharply, during the month, closing strong in price, on much lighter offerings, particularly of the Minnesota Extras....Provisions have been in more demand, and prices have been generally quoted higher. ....Wool has been more freely purchased at firmer prices, holders of desirable qualities of domestic showing much more confidence....Cotton has been quoted rather dearer, on a livelier business.....Seeds have been attracting more attention; and prime rough Flaxseed has been purchased to an important aggregate for August and early September deliveries, at $1.35@$1.40, closing at $1.40 ℔ bush....Hay, Straw, and Hops have been quiet at irregular prices....Naval Stores and Petroleum, less freely dealt in, and quoted weaker in prices.... Groceries, fairly active; Coffee, firmer; Sugars and Molasses, lower... .Ocean Freights have been more active, especially in the Grain and Petroleum interests, opening higher, but closing weaker.....Grain rates by steam to Liverpool closed Aug. 12th at 7¼*d.* (about 15 cents) per bushel; Glasgow, 6¼*d.*; London, 6¼*d.*; Bristol, 7*d.*; Hull, 8*d.*; the Continent, 8@9¼*d.*; by sail to Liverpool, 6½@7*d.*; London. 6@6½*d.* ℔ bush. Flour to Liverpool, by steam, 2*s.* 6*d.* (about 60 cents ℔ bbl.); by sail at 2*s.*; London, 2*s.* 3*d.*, and by steam, 2*s.* 6*d.*; Bristol, by steam, 2*s.* 9*d.*@3*s.*, and sail, 2*s.* 4½*d.*@2*s.* 6*d.* per bbl. Provisions by steam to Liverpool, 30*s.*@45*s.* per ton. Butter, in refrigerators, 125*s.* Cotton, by sail, 7/32*d.*, and steam, ¼*d.* ℔ ℔. Grain, by sail, for Cork and orders, at 5*s.* 9*d.*@6*s.* per quarter (8 bushels), and to Continental ports, 5*s.* 4½*d.*@6*s.* 9*d.*; and from Philadelphia for Cork and orders, 6*s.* 3*d.*, from Baltimore for Cork and orders, 6*s.* 3*d.*@6*s.* 6*d.*, and Philadelphia for Lisbon, Wheat in bags, at 16½*c.* ℔ bush.

CURRENT WHOLESALE PRICES.

	July 13.	Aug. 12.
PRICE OF GOLD	100 1-2	100 1-2
FLOUR—Super to Extra State	$3 30 @ 4 50	$3 45 @ 4 50
Super to Extra Southern	3 30 @ 6 75	3 40 @ 6 50
Extra Western	3 90 @ 8 00	3 90 @ 8 75
Extra Genesee	4 20 @ 6 00	4 25 @ 5 75
Superfine Western	3 30 @ 3 90	3 40 @ 4 00
RYE FLOUR, Superfine	2 70 @ 3 30	2 70 @ 3 40
CORN-MEAL	2 10 @ 2 90	2 35 @ 3 00
WHEAT—All kinds of White	1 10 @ 1 26	1 00 @ 1 26
All kinds of Red and Amber	90 @ 1 15	90 @ 1 16
CORN—Yellow	45 @ 53	47 @ 55
Mixed	40 @ 48	44 @ 50
White	45 @ 54	48 @ 60
OATS—Western	30 @ 42½	29 @ 39
State	30 @ 42½	30 @ 39
RYE	59 @ 66	61 @ 69
BARLEY	Nominal.	82½@ 1 25
BARLEY MALT	60 @ 1 10	65 @ 1 25
HAY—Bale, ℔ 100 lbs	30 @ 75	30 @ 80
STRAW, ℔ 100 lbs	25 @ 50	20 @ 45
COTTON—Middlings, ℔ ℔	11¾@ 11¾	12 @ 12¼
HOPS—Crop of 1877, ℔ ℔	5 @ 12	5 @ 12
" old, ℔ ℔	1 @ 3	1 @ 3
FEATHERS—Live Geese, ℔ ℔	35 @ 47½	35 @ 48
SEED—Clover, West. & St'n ℔	7¼@ 8	Nominal.
Timothy, ℔ bushel	1 25 @ 1 40	1 30 @ 1 45
Flax, ℔ bushel	1 40 @ 1 50	1 35 @ 1 40
SUGAR—Refi'g & Grocery ℔ ℔	6¼@ 8¾	6 @ 8¼
MOLASSES, Cuba, ℔ gal	32 @ 33	30 @ 31
New Orleans, ℔ gal	23 @ 48	25 @ 48
COFFEE—Rio (Gold)	13 @ 17	13¾@ 17½
TOBACCO, Kentucky, &c., ℔ ℔	2½@ 14	2½@ 14
Seed Leaf, ℔ ℔	4 @ 50	3½@ 50
WOOL—Domestic Fleece, ℔ ℔	20 @ 42	20 @ 44
Domestic, pulled, ℔ ℔	22 @ 38	22 @ 40
California, spring clip	12 @ 27	12 @ 28
California fall clip	12 @ 19	12 @ 20
TALLOW, ℔ ℔	6½@ 7	6½@ 7
OIL-CAKE—℔ ton	28 50 @30 50	30 00 @30 50
PORK—Mess, ℔ barrel	10 25 @10 75	10 75 @11 25
Extra Prime, ℔ barrel	9 50 @ 9 87½	9 75 @10 25
BEEF—Extra mess	10 50 @11 75	10 50 @11 75
LARD, in tres. & bbls, ℔ 100 ℔	6 75 @ 7 25	7 35 @ 7 85
BUTTER—State, ℔ ℔	8 @ 20	8 @ 23
Western, poor to fancy, ℔ ℔	5 @ 20	5 @ 22
CHEESE	3 @ 8½	3 @ 8
EGGS—Fresh, ℔ dozen	8 @ 14	10 @ 16
POULTRY—Fowls, ℔ ℔	9 @ 13	9 @ 12
Chickens, ℔ ℔	12 @ 18	10 @ 14
" Penn., ℔ ℔	18 @ 28	14 @ 16
Turkeys—℔ ℔	9 @ 15	10 @ 16
Geese, ℔ pair	90 @ 1 50	90 @ 1 50
Ducks, ℔ pair	40 @ 75	45 @ 75
Roosters, ℔ ℔	5 @ 6	5 @ 6
PIGEONS, wild, ℔ doz	67 @ 90	75 @ 1 00
SQUABS, per dozen	60 @ 1 25	60 @ 1 75
APPLES—new, ℔ barrel	1 50 @ 3 50	2 0 @ 2 50
PEARS, ℔ bbl	1 50 @ 4 50	2 00 @ 4 00
PEACHES, ℔ crate	40 @ 3 50	75 @ 3 00
CURRANTS, ℔ ℔	3 @ 8	— @ —
BLACKBERRIES, ℔ qt	6 @ 10	4 @ 10
PLUMS, ℔ bush	2 50 @ 4 00	2 00 @ 4 50
GOOSEBERRIES, ℔ bbl	2 75 @ 5 50	1 75 @ 4 75
WHORTLEBERRIES, ℔ bush	2 50 @ 4 25	2 00 @ 3 00
PEANUTS, domestic, ℔ bush	1 30 @ 1 75	1 25 @ 1 75
BEANS—℔ bushel	1 25 @ 3 25	1 25 @ 3 25
Melons, per 100	8 00 @35 00	8 00 @25 00
RADISHES, new, ℔ 100 bun	40 @ 50	40 @ 50
PEAS—Green, ℔ bush	1 05 @ 1 10	1 25 @ —
Canada, in bond, ℔ bu	— @ 77	75 @ 78
" ℔ bag	80 @ 90	65 @ 1 75
POTATOES, new, ℔ bbl	1 75 @ 2 75	75 @ 1 50
BEETS, ℔ 100 bunches	1 00 @ 1 25	1 00 @ 1 50
TURNIPS ℔ bbl	— @ 1 00	75 @ 1 00
" white, ℔ 100 bunches	2 00 @ 3 00	— @ —
BROOM-CORN	3½@ 7	3½@ 7½
SPINACH, ℔ bbl	25 @ 50	20 @ —
TOMATOES, ℔ basket	50 @ 75	20 @ 1 00
CAULIFLOWER, ℔ bbl	1 50 @ 5 00	1 00 @ 5 00
CABBAGES—new, ℔ bbl	2 00 @ 6 00	2 00 @ 6 00
ONIONS—℔ bbl	— @ —	50 @ 1 25
" ℔ crate	60 @ 65	— @ —
GREEN CORN, ℔ 100	— @ —	60 @ 75
LETTUCE, ℔ bbl	25 @ 75	50 @ 1 25
STRING BEANS, ℔ bbl	75 @ 1 25	75 @ 1 00
CUCUMBERS, ℔ 00	50 @ 2 00	75 @ 2 00
CARROTS, new, ℔ 100 bunches	— @ —	1 00 @ —

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	Beeves.	Cows.	Calves.	Sheep.	Swine.
July 22	10,960	54	3,686	26,563	23,703
July 29	12,198	85	3,011	28,714	19,421
Aug. 5	12,371	93	4,346	34,093	20,991
Aug. 12	8,325	105	3,750	26,296	21,632
Total for 4 *Weeks*	43,854	337	14,796	115,668	84,443
do. *for prev.* 5 *Weeks*	50,715	271	21,010	131,928	188,450

	Beeves.	Cows.	Calves.	Sheep.	Swine.
Average per Week	10,963	84	3,698	28,917	21,111
do. do. *last Month*	10,143	54	4,202	26,384	27,690
do. do. *prev's Month*	11,518	41	4,853	28,768	33,862

Beeves.—The market has been a poor one the past month. The heavy receipts, and the so-called "under consumption" together, brought prices down to the low average of 8¼*c.*; the fall being most on poor stock, of which many lots have been carried over from week to week wanting buyers. To make things worse, the foreign trade has fallen off, one or two shippers having suspended operations, and others, looking in vain for profits, are reducing their business. As the month neared the close receipts fell off—the last week nearly one-third, and prices recovered a little. Still the tone of the market was bad, and with everything in favor of sellers but a small advance was made. For once, however, the pens were left empty, and stocks were cleared off, and that was a gain. Prices at the close were 10½*c.* ℔ ℔ for extra steers of 1,350 lbs., estimated 57 lbs. to the 100; 10*c.* ℔ 1,293 ℔ steers, same estimate; 9½*c.* ℔ 1,280 lbs., estimated 56 lbs. to the 100; 8¼@8¾*c.* for lighter cattle, and 6¾@7*c.* ℔ ℔ for Texans of 55 lbs. to the 100. A lot of bulls were sold at $2.60 ℔ 100 lbs., live weight. Dressed beef sold at 6*c.*@8*c.* ℔ ℔ for natives, and 4*c.*@6*c.* ℔ ℔ for Texans.

The prices for the past four weeks were as follows:

WEEK ENDING	Range.	Large Sales.	Aver.
July 22	7 @10¼*c.*	8½@ 9¾*c.*	9 *c.*
July 29	7½@10¾*c.*	8¾@10 *c.*	9¼*c.*
Aug. 5	6¾@10¾*c.*	8 @ 9 *c.*	8¾*c.*
Aug. 12	6½@10½*c.*	9 @10 *c.*	9 *c.*

Cows.—After a struggle to maintain prices, dealers have been forced to give way, and the best cows have sold for $60@$65. Ordinary milkers sell for $30 to $35. Stock is coming in too freely for the light demand.

Calves.—The trade in veals has been dull, but prices have held their own, and prime veals sold for 6¾*c.* ℔ ℔, with 7*c.* for extra. Good to fair brought 5@6¼*c.*, and grass and buttermilk calves at 3¾@4¾*c.* ℔ ℔.

Sheep and Lambs.—Buyers have done what they pleased in the sheep market; no reasonable offer has been refused. The market closed more depressed than at the beginning of the month. The dead meat market is equally unsatisfactory. Prime heavy sheep were taken last week at 4¾*c.*@5*c.* ℔ ℔ for export; fair to good sold for 3¾*c.*@4¾*c.* ℔ ℔ live weight. Lambs brought $4.25 @$6 per 100 lbs. Stock ewes brought $4 ℔ 100 lbs.

Swine have been steady through the month, closing at 4¾*c.* ℔ ℔ for live and 5¾@6¼*c.* ℔ ℔ for dressed. Market pigs brought 6¼*c.* ℔ ℔.

The Horse Market.—The horse market has been extremely dull. There is no sale for green animals this hot weather, as they can not stand the unusual work on the hot city streets. Old veterans, which are daily dying off, have their places filled by younger animals, but no purchases are made that can be avoided. In the week ending Aug. 12th, 65 head were exported, and 2 full-blood Norman stallions, 2 mares, and a colt, were imported through Robt. Stoddard's bonded stables. A valuable trotting horse, valued at $9,000, was also imported the same week. In a few weeks the usual fall demand will be looked for, and business may be more active. No useful quotations can be given at present.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	19.00@ 21.00
Ground Feed, per ton	15.00@ 21.00
Linseed-oil-cake, western, per ton	44.00@ 47.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per ℔	3@ 4

Prices of Fertilizers.

No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton	$56.50
do. do. Lobos, do. do. do.....	47.50
do. do. guaranteed, ℔ ton, cargo H	50.00
do. do. rectified, per ton, 9.50 p. c..	60.00
do. do. do. do. 3.40 p. c.	51.00
Soluble Pacific Guano, ℔ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (Ville formula) p. 1,000 lbs	26.14
do. do. do. Grain and Grass, ℔ 1,000 lbs.	25.00
do. Fruit and Vine Manure, do.	17.50
do. Bone, strictly pure, meal .....per ton.	42.00
do. do. do. extra fine.... do.	40.00
do. do. do. fine..... do.	38.00
do. do. do. medium..... do.	36.00
do. do. do. dissolved..... do.	42.00
Stockbridge Corn Manure, per acre	20.00
" Potato do do	10.00
" Tobacco do do	50.00
" Rye do do	10.00
" Wheat do do	15.00
Bowker's Hill and Drill Fertilizer, per ton	45.00
Gypsum, Nova Scotia, ground, per ton	8.00
Nitrate of Potash (95 per cent.), per lb	9 @9½*c.*
Sulphate of Potash (potash 44 per cent) per lb	3½@4 *c.*
do. do. (potash 27½ per cent) per lb	1¾@2 *c.*
German Potash Salts (potash 12 to 15 p. c. p. ton	$15.00@18.00
Muriate of Potash (potash 50 per cent), per lb	2 @2¼*c.*
Nitrate of Soda, per lb	4 *c.*@4½*c.*
Sulphate of Ammonia (25 per cent.), per lb	4½*c.*@5 *c.*
Dried Blood (ammonia 14 per cent) per ton	$45.00@50.00

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

A Woman Farmer at Valley Springs, Dakota, who deserves success, wrote to Messrs. B. K. Bliss & Sons, in regard to their wheat prizes, as follows: "It did not occur to me in writing to you yesterday, that you might think it singular that a woman should write you for seed in order to compete with men for a prize. To convince you that I am not incompetent to try, I will mention a few items of the work I have accomplished already: We lost all we had, by fire, and came West, to make a new home. As soon as a portion of the claim could be broken up and made suitable, I commenced putting out forest trees and small fruits, as far as I could command the means to purchase. The first year I rode nine miles on horseback to the nearest timber; took up, brought home, and set out four hundred forest trees. The next year I set out four hundred feet of willow hedge, besides currants, blackberries, strawberries, and raspberries; the next year a large lot of asparagus, pie-plant, one hundred raspberries, and eighty dwarf cherry trees. This year I shall complete seven hundred feet of willow hedge, set one hundred raspberries, two hundred strawberries, and make a large garden, and flower beds, besides doing my own housework for four persons. Won't you please permit me to try for a prize?" She was placed in the list of competitors, and we hope to record her as first prize winner.

Manual of the Apiary, by A. J. Cook, Professor of Entomology in the Mich. Ag'l. College. The author is known to us as an earnest student, and excellent observer, and has in the present work given the latest views as to the physiology of the bee, and the recent improvements in bee-keeping. Like a true naturalist, he does not assume to know everything, but all through the work gives credit to other authors and reference to other works, where particular topics are treated more in detail. The work, 286 pages, abundantly illustrated, is sent from this office, postpaid, for $1.25.

How Strawberries are Sold in Belgium.—Our correspondent "G. W. W. H." writes from Frankfort: In travelling through Belgium in June, strawberries are brought to the car windows at every station—luscious great berries, some red, some white, often as large as a pullet's egg, and temptingly displayed in shallow baskets, made of split willow, in the form given in the engraving. Baskets of this shape seem to us well deserving of introduction in America. The construction is simple, strong, and inexpensive. A single willow withe forms the handle and middle support of the bottom; a second withe bent

to a circle forms the rim; and four others, *i. e.*, two on either side between the middle piece and rim, complete the foundation into which thin strips are braided. The depth is only a quarter inch, diameter three inches. On the bottom are a few fresh grape leaves on which are placed the berries, nearly all of them exposed to view.

"Ferns in Their Homes, and Ours," is the attractive title of a work on Ferns, and their Culture, by John Robinson, Esq., of Salem, Mass. If the welcome accorded to a work is in proportion to the need for it, this should meet with a large and rapid sale, for there is no special work for which there have been so many inquiries as for one on ferns. It is not easy to conceive how this demand could be more acceptably met than by the book in question. While those who cultivate ferns may not care to give much study to their botanical characters, every intelligent person will wish to know what constitutes a Fern, and how it differs from other plants, all this is admirably told in the chapter on "The Life of a Fern." Abundant references are given to those who would study ferns botanically, and an excellent sketch of the literature of the subject is given. Having long known of the author as a thorough student and successful cultivator of these plants, we were prepared to find in the practical portions of his book the results of experience in the culture of ferns, under-glass and out of doors. The work, presented in the neatest possible form, and well illustrated, is creditable to the publishers, the Naturalist's Agency, Salem, Mass. Sent postpaid by the Orange Judd Company for the publishers' price, $1.50.

A Shirt for 50 Cents—Seemed to us so improbable, that we ordered a dollar's worth of shirts to see what they could be like. Of course, finer shirts are made, but how even such shirts as these are made for so low a price, still remains a problem—we give it up.

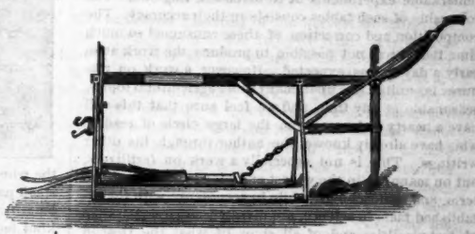
Peaches by Mail.—Some six, or more, correspondents have notified us that they have sent specimens of peaches by mail, asking our opinion as to quality, earliness, etc. In no case, *save one*, have these specimens been received. In this single case the ruling is strange enough. The sender properly paid postage on the parcel, as third-class matter. The parcel came to us, marked 92c—letter-rate, the stamps put on by the sender ignored, and the package marked, "non-mailable."—How it could be "non-mailable," when it *was* mailed, and delivered at letter-rates—or why the post-stamps put on by the sender should go for nothing—be confiscated, as it were, are among those things that "no feller can find out." It may be that we shall some day have a postal law that both the people who use the mails and the Washington "powers" will understand alike—until then we must endure with what patience we may.

Artichokes for Hog-Food.—A circular from "E. F. Brockway," of Ainsworth, Iowa, offering Artichoke tubers for sale for planting, reminds us that this root is an excellent food for hogs, for which purpose it is now quite extensively grown in some sections; they are more nutritive than any ordinary vegetable, save the potato, and nearly equal that chief of vegetables. Under systematic culture they are easily grown, and yield large crops—even as high as 800 bushels per acre having been raised, and 1,500 to 2,000 bushels per acre yields are claimed in some instances. They are planted like potatoes, in spring, on light dry land, and cultivated the same as corn. Of course this is the plant known as "Jerusalem Artichoke," a variety of which is offered as the "Brazilian Artichoke."

The Best Lamp is what is commonly called the "German Student Lamp," or some one constructed on the same principle. These lamps are made in America better than elsewhere. Mr. Hinrichs says the proper name is "St. Germain." These have a reservoir of oil so arranged, that whenever the oil around the wick sinks so much as an eighth of an inch, a bubble of air enters the bottom of the reservoir and lets down more oil. A lamp flame is fed by oil ascending by capillary attraction through the wick. In the common lamp, as the oil burns away, it has further to rise, and feeds slower, and as the wicks are not uniform, and are often clogged, the light both diminishes and is unsteady. In the Student Lamp all this is obviated; there is a clear, *steady* light as long as the reservoir holds a spoonful of oil. Such lamps are vastly superior to the light of gas, which, owing to constantly varying pressure, is always unsteady, straining the eyes, even when it is not flickering. As to economy, our "family expense book" shows for the same quarter in the year, that after introducing the Student Lamp through the house, kitchen included, and using Pratt's Astral Oil, bought at the regular price, through the grocer, we had a better light at *one-tenth* the expense of gas. By the way, there is an important addition to the old ball-and-pin valve, in lamps constructed on the above principle. A cut-off is attached to the discharge tube at the base of the reservoir, which also has a catch at the side that not only stops the churning motion but also prevents its being lifted out until it is turned so as to close the discharge tube. After filling and replacing, a quarter turn opens the bottom. This arrangement is safer and more convenient, as it avoids the usual dripping or spilling of oil, and prevents any over-flowing of the wick.

Trimming Lamps—The Best Way, by far, is not to *trim* them at all. It is is very difficult to cut the wick evenly all round, and any portion or point left higher than the rest, gives an irregular flame, if not smoke. All that is needed, is to remove the thoroughly charred portion at the top. Turn the wick up just enough to expose this part, and *rub it off* with a cloth or with soft paper; the top of the wick will then be even with the fire line all round. To prevent soiling the lamp or table, the charred part can be pinched of mainly, giving it a final smoothing rub. The dark portion that will not rub off, is quite as good as the unburned parts, and will light more quickly. When impure oil is used, the wick becomes coated all through with dust or dirt, and when this accumulates so as to interfere with the ascent of the oil, a new wick is essential.

A Turnip Topping and Pulling Machine is extensively used in England, where the turnip is one of the principal crops grown on all stock farms. The increased acreage devoted to the crop in this country creates a demand for some simple machine for harvesting it. We reproduce an illustration from the "Agricultural Gazette" (Eng), of one known as "Hunter's Turnip-Topping and Tailing Machine," which is simple in construction, and said to be effective in operation, and is self-acting. "In a neat wrought-iron frame, two saws are fixed to guides, which run on the crown of the turnip, and prevent the saws from cutting or bleeding the root. The whole is hinged to the frame at one end, and fastened by means of a chain to the other, so that the cutting saws adapt themselves to the variously-sized roots. At the back end of the machine, and well clear of the saws, is a cast-steel concave blade or shear, which lifts the root



without cutting, so that by the use of this implement, a crop of turnips and swedes can be lifted and topped with much despatch. It is also made double." We understand that the machine is not patented in this country, and it is so simple, that any good mechanic, by the aid of a blacksmith, ought to be able to make one.

Caponizing.—"F. E.," Sussex Co., N. J. Young fowls cannot safely be caponized after they are 3 months old. When of 6 or 8 pounds weight there is more risk than when they weigh half that. Capons frequently weigh 10 to 16 pounds, and sell for much more than common fowls. For the price of the instruments write to H. H. Stoddard, Hartford, Conn. "Philadelphia dry picked" poultry doesn't come from that city, but from Bucks and Berks Counties, Pennsylvania, and other districts, for which the nearest market is Philadelphia.

Merino Rams.—"W. H. O.," Washington, D. C. It would not pay a breeder of prize Merinos to raise them for $5 a head. That is about the mutton price for an ordinary native sheep. A good Merino ram cannot be raised for less than $15 to $50, according to the breeding value of the stock. The latter price is very moderate for an animal that will add a value of at least one dollar for each of the lambs he may sire—60 to 80, from 50 ewes each year. They can be procured of advertisers in this Journal.

"House Plans for Everybody," by S. B. Reed, Corona, L. I., N. Y. The House Plans which have formed a marked feature in the *American Agriculturist* for the past three volumes, have differed from most such plans in the fact that nearly every one has been subjected to the test of practice. They have not been the ideals of an architect, but represent houses that have actually been built. The work abounds in a great number of practical common-sense suggestions, convenient and useful devices, many of them original ones. Another most useful feature is the estimate of cost, down to the minutest details, so that one may calculate from the price of lumber at any given time or place, within a few dollars of the outlay required. These plans cover such a wide range as to style and cost, that they may be properly designated "for everybody," as the needs of those who can afford only a $350 cottage are as carefully provided for as those who invest $8,000 or more in a handsome mansion. There is not only this wide range of prices, but an equally wide variety in styles, and while none are overloaded with ornamentation, costly at first, and more costly to keep in repair, the pleasing aspect of the dwelling is regarded in even the humblest of the designs. The many persons, builders and others who have purchased bound volumes of the *American Agriculturist* solely for the sake of these plans, and all others who wish really practical designs for dwellings, arranged with a view to the comfort and convenience of those who are to live in them, will be glad to know that they have been reproduced in the form of a Book with the above title. The engravings, on the heavy tinted paper, with the careful printing

that can be given to a book, appear to much better advantage than they possibly could in the rapid presswork of the newspaper, and while they form a most useful, they make a really elegant book. There are 40 designs, each illustrated by a perspective view or elevation, and plans for each floor, besides numerous engravings to illustrate details of construction, when needed. All is made so plain by description and illustration, that any one of ordinary mechanical ability can build from any one of the designs. Being "for everybody," it is sent at the low price of $1.50, postpaid.

Rates Reduced!—Our readers will see by an announcement on page 321, that there has been an essential reduction in the subscription rates of the *American Agriculturist*. This will, no doubt, greatly enlarge our circle of readers, and the editors will spare no effort to make the paper meet the wants of the whole family, however large it be.

"Talks on Manures."—This work, by Mr. Joseph Harris, which was announced some two months ago, will be ready for delivery by the time this reaches our readers. It was stated that one of its most valuable features was the presentation of the elaborate tables of the remarkable experiments at Rothamsted, England. The sole value of such tables consists in their accuracy. The composition and correction of these consumed so much time that it was not possible to produce the work at so early a day as was expected. However, a work on manures is, unlike one upon many other agricultural topics, seasonable at any time, and we feel sure that this will have a hearty welcome from the large circle of readers who have already known the author through his other writings. This is not especially a work on fertilizers, but on manures, in the widest and broadest sense of the term, and its teachings, while in accordance with the established facts in science, are divested as far as possible of technicalities and of all show of what the Deacon would call "scientific larnin," but are conveyed in that pleasant, colloquial manner which his "Walks and Talks," and "Talks on Crops" have made familiar to so many. Where pleasant reading and sound teaching are so happily combined as in the present work, it can not fail to be widely useful in its effects upon farm practice. Pages 354. Sent by mail for $1.50.

"Winter Greeneries at Home."—Just as shorter days and cooler nights remind us that preparations for our "Winter Greeneries" must soon be made, here comes the needed work in the very nick of time, to tell what to do, and how to do it. The author, the Rev. E. A. Johnson, D.D., of Allegheny City, Pa., has not brought together all he knew, and all that he could find that any one else knew, in one promiscuous and confusing jumble, and called it "Window Gardening," but has given an account of his own "winter greeneries," and told it all so pleasantly and plainly, that they must be dull indeed who cannot follow in his steps to something like his success. "Attempt only what can be done well," is not enjoined anywhere in the work, that we recollect, but that is the idea that pervades it. There is nothing advised beyond the reach of those of moderate means, and whoever will follow his simple teachings may hope to attain a success approaching the author's own, as shown in the fine illustrations of his beautifully "embowered study." The title of the work conveys his method; green in the form of ivies and other climbers, green in the trailers and droopers, green from above, green at the sides, green in graceful ferns, and quaint forms, green—cheerful green of various shades make up his "winter greeneries." Following Nature, he establishes the ground work of green, and then, following the same excellent teacher, lights it up with bits of color, in the way of bloom, which are all the more effective for their setting of green. Then he does not thrust a whole florist's catalogue at one, but in his selection of "Winter Bloomers" judiciously points out the few plants that one may have in a living-room—for the greenery is to be for and with the household—and with any fair treatment give flowers in winter. Having been over much of the same ground in the management of house plants, we feel sure that the author is as safe a guide as he is a pleasant one. And we are glad that we have in "Winter Greeneries at Home" a work that will do much towards encouraging and increasing the culture of house plants, by showing the beginners how to begin. The work is handsomely illustrated, with views of the winter greeneries at home with the author, and engravings of the various ways and contrivances that his experience has suggested. While eminently practical, the work is handsome enough for a "gift book," and is sent by mail, postpaid, for $1.

The Massachusetts' Horticultural Society deserves much credit. If it is one of the oldest societies of its kind, it is also the most active. It gives us its "Transactions" for the first half of the year 1878, by the time the second half of the year has fairly begun. The essays read at the meetings, and the discussions to which they gave rise, are of interest, and that interest is not decreased by their prompt appearance in a neat and carefully prepared volume. Much credit is due to the present Secretary, Robt. Manning, Esq.

Basket Items continued on page 353.

Sundry Humbugs.

If one fraud has been more thoroughly exposed than another, it is Clark & Co., "Claim Adjusters." We began to show their methods, under various aliases, last year, and there has been scarcely a month this year in which some new phase of their operations did not call for a new warning. Besides this, Clark & Co. have become so conspicuously notorious that the daily papers have taken them up, and if there is a concern that has been widely advertised—after a fashion—it is this. Yet Clark & Co. are good judges of human nature; they know that but few people, in proportion to the whole number, read, and of those who do read, a very small proportion recollect what they have seen for any length of time; they also know that a large share of mankind feel flattered at being addressed personally, by letter, and if this letter contains a tempting bait, in which the hook is cleverly concealed, they stand a good chance to get some bites, so this remarkable firm of

CLARK & CO. STILL CONTINUE

to send out those nice letters asking, "Is this your signature?" and will continue so long as it pays, or until some one who finds that he has been wronged, will visit New York and enter a complaint. This is very unlikely to happen, as the letters are, as a general thing, sent to persons living at a great distance. It is very amusing to see how particular many are to request us to be sure to return Clark & Co.'s letter which they have sent for our inspection, while they *know* that they have invested in neither mining stock nor jewelry speculations, feel that there is just a possibility that something may come of it, and wish the documents returned. If these persons knew that we have received *bushels* of these Clark & Co. letters, they would not place much value on theirs. ....That remarkable

AMERICAN AND EUROPEAN SECRET SERVICE CO.

is not the Co. we should like to employ on any "secret service," as the managers, or whoever run the concern, do not know the members of their own force. Imagine the surprise of a business man, the head of a large agricultural implement house in Missouri at receiving such a communication as this:

"Dear Sir—As we consider you one of the best detectives on our force, we desire to publish your picture in our paper, and also give you a favorable notice, for which we will charge you only $10—*the actual cost of engraving*, the notice being FREE. Write *at once*."

Then follow requests for photograph, biographical sketch, etc. No wonder our Missouri friend requests us to "warn the public of these frauds," which we have been doing for some months. The scheme seems too absurd to succeed, yet has no doubt trapped many.

THE VALUE OF ANY SECRET SERVICE

depends upon the skill of the agents, and the fact that they are *not known* to be agents or detectives. Yet this so-called Company has been appointing "detectives" right and left, the chief condition being that each shall subscribe to, and send $3 for their paper—the rest being all promises. Now, they appeal to the vanity of their dupes in this picture dodge, and will no doubt get many a poor fellow's $10—who has not sense to see that publishing the portrait of a "detective" is the greatest possible absurdity....Those chaps in Calais, Me., still send out letters informing the recipient how his name was obtained. "Returning from our mine,

WE MET A GENTLEMAN ON THE CARS

from your locality, and we asked him to give us the names of some persons who might take an interest in mining," etc. This accompanies a circular showing "How Fortunes are made in Mining," accompanied, of course, by offers of the stock itself, "if applied for at once." The number of times these people returned from the mines, and the number of "gentlemen" they met in the cars are beyond computation. Commen-sense people will ask: "If such fortunes are to be made in your mines, why don't you make them, and not spend time and money in writing and sending such transparent stuff as this 'gentlemen on the cars?'"

THIS SEMINOLE GOLD AND SILVER MINING COMPANY,

whose proprietors are always meeting "a gentleman on the cars," is not very definitely located; the circular says it is one day's ride from the Union Pacific Railroad in Wyoming Territory.—The "Carbon County News" Rawlings, Wyoming, (see "N. Y. Tribune" Aug. 13, '78, p. 5), has very decided opinions as to this mining scheme, and others like it. We advise all who contemplate investing in these mining schemes to either visit the locality—if they can find it—or write to the above named journal for a copy giving its views of the mines. The Wyoming people complain that schemes like these interfere with the development of the real mineral riches of the Territory.

DO HUMBUGS, LIKE COMETS,

have their periods of reappearing? This would seem so from the fact that every now and then a very old one, that we had quite forgotten, comes around as new.

We infer from our letters that there is a revival of

THE TREE COTTON SPECULATION

in some of the Western States, as we receive inquiries as to its culture and yield, and how long after planting a crop may be expected. During the war, when cotton was at its highest, there was every inducement to raise cotton in the Northern States, and every thing that promised to be of value was tried. Some samples of "Hardy" and "Tree Cotton" were brought us by gentlemen who could have no motive for swindling, claiming that they could be profitably grown in all the Middle States, but these gentlemen were mistaken, and their well intended trials, like the numerous swindles to which they gave countenance, all alike ended in failure. We advise our inquiring friends to first try two or three plants, before they bother about the yield per acre.... The "Butter Compound" business in Massachusetts seems to be remarkably quiet, but we hear of another

BUTTER COMPOUND FROM OREGON,

the old Ohio concern, which we supposed dead long ago. A citizen of Oregon, who, misled by the claims and plausible offers of the "Company," took the agency, now sends us all the documents, agreements, etc., and asks us to publish the concern as

"THE GRANDEST HUMBUG OF THE AGE."

We have been publishing this as a humbug these many years, and are glad that there is one the less "agent" for the sale of the vile stuff.... A friend in Seward Co., Neb., writes: "A great many persons here are investing in —— & Co.'s (Wall Street)

"SO-CALLED COMBINATIONS,"

and begs us, if we have any more light upon the subject, to let it dawn on them. We have said in these columns all that can be said. We can not point out one single concern and say, these are frauds, but we can say, as the opinion of the best business men in Wall street, as well as out of it, that all these parties who send out tempting circulars, are in bad company, and that the business—even if honestly conducted—is full of such risks as no one of moderate means should run. It is really a game of chance, having all the fascinations of other such games, and the player is pretty sure to lose in the end. There are, in Nebraska, as elsewhere, certain persons who are on the lookout for a chance to acquire riches by some unusual means. Such persons, when they get a few dollars ahead, are not happy until they can get rid of them in some lottery, or some mining or Wall St. scheme, and the more extravagant the claims put forth by these, the more readily do such persons fall into the trap. Warnings are wasted upon such, and it is only those who can stop and think that we can hope to benefit....An Arkansas subscriber complains that his neighborhood is

FLOODED WITH LOTTERY CIRCULARS,

and thinks it suspicious that the documents are mailed in New York City in a sealed envelope, to be answered at New Haven, Conn., while the lottery is to be drawn in Cuba. Our Arkansas friend doesn't know the "ways that are dark," taken to avoid the vigilance of the Post Office officials. But what are the New Haven officials about, that lottery tickets can be openly advertised from the City of Elms?....

SWINDLES UPON FARMERS,

especially in the way of introducing new implements, continue to be reported; these, a few years ago were more frequent in New England than elsewhere, but a case given in a recent "Ohio Farmer" shows that these chaps have taken the advice to "go West." It is the same old story. Two glib-tongued chaps call upon the farmer, and at once make friends. They find it a pity he should work so hard for a little profit, and show how he may essentially add to his income by taking the agency for their machine. They, after much talk, persuade him to sign a contract to act as their agent, and

depart. In a few weeks the farmer learns that there is a large lot of machinery awaiting him at the railroad depot, and he gets a notice from a neighboring bank that his note for a certain amount is due. In a case in Butler Co., Ohio, a farmer found that he had signed an order for "*twenty* Marsh's Improved Corn Shellers," when he supposed that he only agreed to act as their agent, and to receive a corn-sheller free. This and other cases of frequent occurrence add force to our injunction.

FARMERS, BE CAREFUL WHAT YOU SIGN!

It should be added that the real makers of the implement, Marsh & Co., knew nothing of the operations of the swindlers.....Recent readers of the Humbug columns can have little idea of the extent to which the

COUNTERFEIT OR "QUEER" MONEY

business was carried on 10 or 15 years ago. Those who have the back volumes, will find that we often warned our readers against 10 or 20 dealers each month. The whole thing, as explained in full in the former volumes of the *American Agriculturist*, affords a remarkable and curious chapter in the history of crime. Of late, we hear of these dealers but rarely, and they seem to be more cautious than formerly. The latest is from a chap in New York to a lawyer in Nebraska, informing him that he got his (the lawyer's) name, from the book of a former dealer, and that if he is in want of such money now, the writer will give him, "the name of a *bonafide* dealer from whom you can obtain the money of the *finest kind*. * * I make a small commission on goods sold to customers whom I find."... This is in quite strong contrast to the bold game played a few years ago, making appointments at obscure hotels, and threatening the one who receives the letter with death in case he betrays the writer. It is a satisfaction to know that we have done our share in breaking up this rascally crew.

MEDICAL MATTERS

appear to have succumbed to the "heated term," and but a single novelty, or rather old thing in a new shape, has turned up during the month. This is a pamphlet on

"ELECTRO-VOLTAIC AND MAGNETIC

Belts, Bands, and Appliances for Self Cure," which is one of those pernicious publications, ostensibly intended for the benefit of young men, but really calculated to work upon their imaginations and excite their fears; having convinced the unfortunate reader that he is in a bad way, he is ready for the assurance that his only hope lies in the application of this electric concern. Our views of these so-called electrical appliances were given a short time ago. In brief: electricity *may be* a useful agent, but it should be applied under the advice of a physician, who is *present* to examine and prescribe. Many of the electrical appliances, though they have a "scientific" look, are utterly useless, being at most a series of closed circuits, which pass no electricity into the body, and all the good they do is in acting upon the imagination of those using them.

Successful Strawberry Culture.

Mr. Eli Beard, of Rockland Co., N. Y., has been, and is remarkably successful with strawberries, and many who have seen his patch, have asked him for his method of culture. Finding it a task to reply to the applications, he has concluded that the most direct way of reaching everybody, is to have the account published in the *American Agriculturist*. Mr. B. writes:

"The plants are set in rows 20 inches apart, and 10 inches apart in the rows—the earlier in the spring the better—and cultivated in the usual way the first and second seasons. After the fruit has been gathered the second season, between the first and middle of July, the vines are cut close to the ground: new plants will appear soon after the cutting. In the following September, the old roots, which have become dead and are of a dark color, are removed from the vines, being careful not to disturb the new and living ones. Late in the fall, before the ground is frozen, cover the plants with from two to four inches of coarse littery manure. In the spring, after the ground becomes settled, remove the coarse manure from over the plants and fork it into the soil between the rows; cultivate, and remove the weeds from time to time, keeping the runners cut off, and not allowing them to occupy the space between the rows. After the blossoms appear, mulch thoroughly. My plot is about 40 feet square; it was planted seven years ago. The above method of cultivation has been strictly observed; the product has increased every year up to the present, both as to quality and quantity. Two years ago we picked from the plot over 30 bushels; since then we have not been careful to measure or estimate the yield, but are confident that not less, but probably more fruit has been produced. After the second year, the vines run together, making a continuous solid row, which is from 4 to 6 inches wide on the ground."—[Mr. Beard's method is a modification of what is known to cultivators as the "Matted Row" culture. He attributes his success to: 1st, clean culture and an abundance of manure. 2d, to cutting off the foliage after the fruit is gathered—an old method, about which cultivators do not agree. 3d, the removal of the "old roots," which we judge, from his description, are the under-ground stems of the plants, with the sort of bulb made by the hardened bases of the leaf-stalks. In this way he secures a thorough renewal of the plants each year, and by having highly enriched soil for the new plants, he gives them the best possible chance. Mr. B. says, that originally there were the Wilson, Green Prolific, and two others, the names of which are lost, but they are now thoroughly mixed.—EDS.]

Some Bee Notes for September.

BY L. C. ROOT, MOHAWK, N. Y.

In most localities, all surplus honey boxes should be removed from the hive before this date. The practice of leaving boxes upon the hive until late in the season, should be avoided, as they become soiled by so doing. All unfilled boxes should be removed as soon as the yield of honey is over, and packed away for the following season's use. Combs containing honey in partly filled boxes, may be taken out and the honey drawn from them with the extractor, and the combs used for guides in boxes next season. If single-comb boxes are used, the honey may be extracted without removing the combs.

MARKETING HONEY.—Where but a small amount of surplus honey is secured, it is usually best to dispose of it at a home market. It requires less attention in packing, and, as a rule, will bring a better price. Large quantities will necessarily be shipped to a city market. The provision of a proper package for transportation is essential. For box honey the shipping-case should hold from 10 to 25 lbs., and may be neatly made as follows—The size will depend upon that of the boxes to be packed;

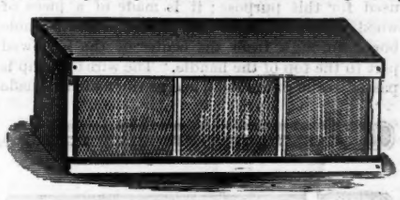


Fig. 1.—BOX FOR SHIPPING HONEY.

basswood lumber is most suitable: Cut two pieces, ¼ or ⅜ in. thick, of proper dimensions, for the ends. At equal distances from the ends, and about one inch from one edge, cut a hole ¾ in. deep for a handle, as at *a*, figure 1. A top and bottom, and four strips 1¼ wide, all of ¼ or ⅜ in. thickness, according to the size of the crate, constitute the remaining material of the case. Nail together, as shown in engraving. Before packing, boxes should be nicely cleaned from propolis, and care taken in every way to place the honey in market in a neat and attractive package. The boxes which each case is to hold should be placed upon the scales and weighed before packing. With a little care in selecting boxes, fractions of pounds in a case may be avoided, which is desirable. The net weight should be neatly marked on the case.

EXTRACTED HONEY.—The quantity of liquid honey placed upon the market is increasing each season, and finds ready sale in nearly every style of package, from jelly cups to casks holding 500 lbs. If fruit cans are used, let them be of some standard make, and pack them in crates of twelve each, as shown in figure 2. Each can should have an attractive label, indicating the quality of the honey. Far the past few seasons we have shipped largely in tin cans, holding 10, 15, and 20 lbs. At present the demand is for casks, or firkins, holding from 150 to 200 lbs. Such casks should be well made, and bound with wooden hoops, which should be nailed in place,

Fig. 2.—HONEY IN CANS.

and the casks well coated with bees-wax, inside, before filling. To do this, they should be allowed to stand in the sun until they are quite warm. The wax should be applied quite hot. Pour a quart into a cask, and cork up tight, then roll and turn it, until every spot is touched, when the unused wax may be poured out. The warmer the cask, the hotter the wax, and the quicker the work, the less wax will be required. Avoid filling the casks too full with cold honey, for if allowed to stand in a warm place, the honey will expand, and cause the casks to leak.

PREPARATIONS FOR WINTER.—All openings at the top of the hive should be closed so as to keep the interior warm, which will tend to continue breeding later in the season, and thus aid in securing a larger number of young bees for winter. Combs of honey from the heaviest hives may be changed for light ones in less prosperous colonies, and each thus have a sufficient quantity of food for winter. Each hive should contain about 25 lbs. of honey. Avoid exposing honey, whereby robbing may be induced. Where few hives are kept, the different operations may be performed morning and evening, when the bees are flying less freely, and robbing will be less likely to occur.

HONEY YIELD.—From the hive mentioned in August Notes, honey has been taken as follows: July 12, 45 lbs.; July 20, 106¼ lbs.; July 26, 50¾ lbs.

NO PATENT.—I am receiving letters frequently which complain that unscrupulous parties in various sections of the country are endeavoring to collect a fee for the right to use the New Quinby Hive. One individual in Seneca County, N. Y., claims to have secured a patent upon it, after it has been before the public ten years. I wish to state that all such claims are fraudulent, as all of Mr. Quinby's inventions were given to the public *free*.

Harvest Home Picnics.

The successful gathering of the harvest signalizes the most joyous season of the farmer's year. It is the fruition of his hopes, and the reward for his labors. In many other countries the occasion is celebrated in various appropriate and interesting ways. "Thanksgiving Day" in America partakes of this character, and is especially endeared to the New England heart, but we need something nearer harvest time—a festival which can be held out of doors, while the fields and woods still are fresh and green. In short, country people need a Harvest Home Picnic, not necessarily at the drawing home of the last load of ripened grain from the fields, or of fruit from the vineyard or orchard, but sometime in August or September, to celebrate the gathering of the harvest, and express our thankfulness for the gracious gifts we have received. And when with pleasure-taking is combined some other good object, the occasion may be one of visibly lasting benefit. Such an affair was a church picnic and festival the writer had the pleasure of attending about the middle of August. The little country church had a small debt, which its honest people wanted to pay. So some bright woman suggested, and it was decided to combine a picnic, a fair, and a harvest home festival, in one. A gentleman loaned his splendid farm, and had a fine grove cleared up and the many natural attractions of the place put in order for his visitors, employing all his spare hands in the work for some days. The creek was dammed for boating, and a "Crusoe Island" and rustic bridges made. Evergreen arches adorned bridges and paths; a beautiful natural bower was formed by clearing out the rubbish about a giant but fallen willow, and seats were constructed here and there through the grove. Simply painted signs on plain boards indicated the various localities. One neat banner of white cloth gave the programme; another had the words "Harvest Home Picnic;" a third, "Faith, Hope, and Charity—the greatest of these is Charity." Then the company came—villagers, farmers, and city visitors. Tents were pitched over tables, from which sandwiches, cake, coffee, ice-cream, and confectionery were sold. The gipsy tent was unique; on the ground were displayed various trinkets of woman's handiwork for sale, and not the least attractive were the gipsies in quaint and pretty costume; outside was a veritable gipsy cart, and a pot hanging from a crane over a smouldering fire. Flower girls spread their tempting wares in the shade, near the "Bower." "Rebecca at the Well" was dressed attractively; the well—a big milk can partially sunk in the ground, and surrounded by rocks and ferns—dispensed lemonade to the thirsty crowd at "only five cents a glass." Games—such as an apple race, a sack race, a foot race, and a tub race—and the ascension of fire balloons made fun for the people, and brought prizes of ice-cream and lunch for the winners. A mock art gallery and a lace maker were among the novelties. One of the marked attractions was horse-back riding by a young lady of the farm, with her instructor. They each drove a "tandem," and made their well trained horses pass through pretty evolutions and perform various [illegible]. These exercises called to mind the good old times when ladies generally rode so much and so well, and brought the wish that the many country girls who have the opportunity would engage more in this graceful, as well as healthful, pastime.—The net receipts were considerable, helped along by a small admission (10 cents) to the grounds; and best of all, the day was delightful, everybody had a good time, none felt bored, and when sundown came, many felt sorry that the day was done. Some enjoyed a social party in the evening (which helped swell the proceeds), and had a pleasant drive home by moonlight. Altogether it was a day and a programme that might be copied—at least in its outlines—to the pleasure and profit of many a country town.

Railways of the World.

INTERESTING FIGURES.—According to statistics recently published at the beginning of 1877, there were 184,002 miles of railway in the world, distributed as follows:

United States	74,095 miles.	Egypt	975 miles.
Canada	4,200 miles.	Rest of Africa	544 miles.
Argentine Repu'c	990 miles.	Total in *Africa*	1,519 miles.
Peru	970 miles.	In Australia	1,924 miles.
Brazil	836 miles.	Sundry	20 miles.
Rest of America	2,229 miles.		
Total in *America*	83,420 miles.	Total in *World*	184,002 miles.
Germany	17,181 miles.		
Great Britain	16,791 miles.		
France	12,492 miles.		
Russia	11,555 miles.		
Austria	10,852 miles.		
Italy	4,815 miles.		
Turkey	960 miles.		
Rest of Europe	13,781 miles.		
Total in *Europe*	89,430 miles.		
India	6,527 miles.		
Rest of Asia	1,162 miles.		
Total in *Asia*	7,689 miles.		

[Estimating for the increase since the above tables were made up, the *present* length of constructed railroads is believed to be 205,000 miles; and adding for double *tracks*, switches, stations, etc., the total length of *track* is estimated at over 256,000 miles.]

The total cost is given at $16,313,500,000, of which $10,386,000,000 is allotted to the 89,430 miles in Europe, ($116,135 per mile); and $5,927,500,000 for the 94,592 miles in the rest of the world. In last month's *American Agriculturist* we gave the cost of the railroads in the United States as $4,568,597,248. ($61,659 per mile), which leaves $1,358,902,752 for the cost of the 11,152 miles outside of Europe and the United States, (or about $122,000 per mile). The average cost of all the World's Railroads is about $88,700 per mile. The total value of the Real and Personal Property of the United States, for 1870, was $30,068,518,507, or less than twice the cost of the railroads of the world....It will be seen that $^{74}/_{184}$, or two-fifths of the railways of the world are in the United States.... It is only 53 years since the first railroad was opened to traffic (the Stockton and Darlington in England, Sept. 27, 1825); and only 28 years ago (in 1850) there were only 18,600 miles of railroad any where. There were, therefore, 165,402 out of the 184,002 miles built during 26 years, or 6,323 miles a year, or over 20 miles for each working day. Reckoning an average of 25 pounds of iron to the foot of iron rail, the 256,000 miles of track requires 67,584 *million* pounds of iron (67,584,000,000 lbs.); or to help the conception, say 1,536 pounds for every man, woman, and child, in the United States (reckoning them at 44 millions.) Yet this amount would make little impression upon the vast stores of iron provided in the bowels of the earth, or in a small coating of its surface. (The specific gravity of iron is about 8, making the weight of a solid foot 500 lbs. The 67,584,000,000 lbs. of railroad iron would make 135,168,000 solid feet of iron, or a mass about 514 feet every way). ....What will be the figures, when the rest of North America, South America, Asia, Africa, Australia, and the larger ocean Islands are supplied with the railroads that can be profitably built and used....As all railways have *ties* about 7 feet long, and averaging, say one to every 2½ feet, some of our arithmetical readers may find amusement in estimating the amount of timber required, the amount of ground to grow it, the necessary amount to be constantly growing, if the ties require a renewal once in seven years, on the average, with no new railroads.

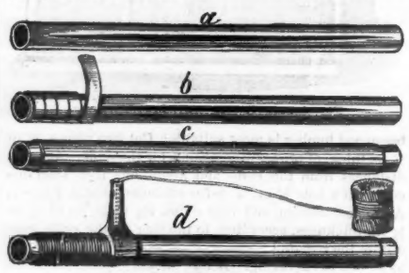
A Farm Order with the Right "Ring."

A New York gentleman, carrying on extensive business, owns a large farm, to which he goes with his family during the summer. There are many workmen employed, who are under the immediate care and direction of the Head Farmer, or Superintendent. Our friend finds among his files, the following order issued by the Superintendent, on March 23d, last. It has the right ring—is firm, but conciliatory and stimulating—of a kind that a general would issue to men going into battle; and were not these men going into a real battle? With such a leader, and imbued with the spirit of the order, they will conquer themselves and their bad habits, and the results will show a balance on the right side when the season's work is summed up. We solicited a copy of the "Order," and here it is:

"Now, we are going to start on full time, and perhaps for the season; that will depend upon circumstances. In the first place, I want every man to take good care of tools, and keep them in their places when not in use. Next, be on hand promptly to commence work. Next, be always sure that it is time to quit, before leaving your work. Never stand listening to somebody telling yarns in working hours. Despise tattlers; let us have peace, and with that industry. Never be found watching the overseer, but let your work show that you have been busy in the absence of your overseer. Let us try to have it said of the men 'Only see the amount of work done for the number of men.' Also, so conduct yourselves, that I can say to the proprietor, 'We have a choice lot of men.' This I can do with a good will, if you do so conduct yourselves; if not, I cannot, and you will lose your jobs. So all this, you see, is for your own interests, and if you will not study your own interests, I cannot be expected to."

Repairing Water Pipes.

When water pipes are burst by the frost, it is easy to repair them in the following manner. The break is usually as seen at *a*, and is caused by the expansion of the water in the pipe when freezing. In repairing such a break in a lead pipe, first bring the edges near together by hammering, then scrape the surface around the broken part, and solder it; or the piece may be cut out, and a new piece inserted. But for iron pipes, and for lead pipes, when it is not convenient to solder them, a different plan may be followed. A strip of stout canvass soaked in a melted cement, made of pitch and brick dust, is wrapped around the pipe, as shown at *b*, until the injured part is covered, or a piece of sheet rubber may be used as at *c*, taking care that the edges do not meet over the break. If the broken edges of the pipe are sharp and likely to cut the covering, file them down. After the wrapping is placed, it is "served" over with copper wire or tarred hemp as illustrated at *d*. A "serving" mallet is used for this purpose; it is made of a piece of wood hollowed to fit the pipe, and with a hole bored through from the center of the hollowed part to the top of the handle. The wire or hemp is passed through the hole, and as the mallet is made



MENDING BURSTED PIPES.

to rotate around the pipe it lays the cord or wire in an even coil upon it. The wrapping may be laid tightly by pressing upon it as it enters the handle of the mallet, or by twisting it once around the same as it comes from the ball. When it is firmly bound, the end may be fastened in any secure manner, and the whole covered with a coating of the pitch and brick dust. These directions will apply to all sorts of pipes where the pressure is not very great; otherwise the wrapping will need to be made stronger to resist the greater pressure.

Report on Insects Injurious to the Cotton Plant.—The Commissioner of Agriculture has appointed Prof. J. H. Comstock, of Cornell University, and Prof. A. R. Grote, of Buffalo, N. Y., special agents to carry on observations and experiments in connection with insects injurious to the cotton plant. These gentlemen, together with several other local observers, who have been appointed in different parts of the cotton belt, will act under the direction of Prof. Riley, the Entomologist of the Department, who has prepared a circular letter of inquiry to be sent to correspondents throughout the South. From this we learn that it is the intention of the Department to make an exhaustive report on the insects injurious to the great staple, and do for the South what the United States Entomological Commission has already done for the West. Such a report, strange to say, has never yet been made, and under Prof. Riley's charge, we have every confidence that it will prove, like his other similar work, full, thorough, and reliable.

A Home-made Wind-mill.

"W. B. W.," Mendon, Ill., sends a description of a home-made wind-mill. The manner of making it is as follows: Procure some 2-inch oak boards; saw out a disk (*a*, fig. 1,) about 16 or 18 inches in diameter; make a square hole in the center 2 x 2 inches; bolt the arms to this as shown. These must be of good, hard wood, about 3½ feet long by 2 x 2 inches thick, for an 8-foot wheel. Chamfer off one side, and screw on the cross pieces, *b*, *b*; upper one 14 inches long, lower one 9 inches long. These must be put on at an angle, so as to set the wings diagonally to the wind. To these nail thin pine weather-boards, allowing the ends to extend a

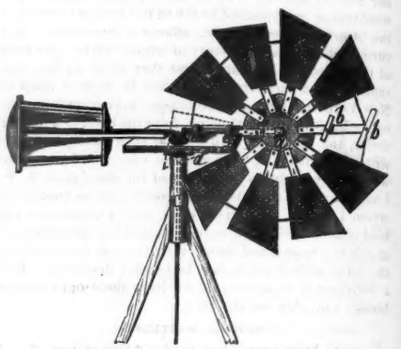


Fig. 1.—WIND-MILL AND PUMP.

little beyond the outer cross piece. After the wings are all bolted on to the center piece, bore a small hole through the end of each arm, and pass a stout wire through and around the entire wheel, taking a hitch around a nail driven in the end of each arm. For the standard or tower, saw out two wheels or disks of wood, making a hole four inches in diameter in each. Place these four feet apart, and nail stout slats all around, making a drum open at both ends, (this is shown at *c*, in fig. 1); four inches from the top of this, at *d*, place a collar, nailing it on securely. Now take a board five feet long, 1½ foot wide, and two inches thick (fig. 2); make a hole in this to fit over the end of the drum on the collar; put another collar on top of this; fasten it securely, and we have the turn-table. To one end of this board put on boxing for the wind-mill shaft (see fig. 2). The shaft for the mill should be of hard wood, shaved or trimmed round, with smooth bearings left for it to work in; but squared at the end, and fastened in the hole in the center of the wheel. To one end of the shaft attach a crank so as to give a 4-inch stroke (*e*, fig. 2); to this attach the pump-rod, which passes down through the drum, as shown by the dotted lines. For the vane, take a 2 x 4-inch scantling seven feet long; mortise the cross pieces as shown in fig. 1; make a frame, and cover with stout canvass or sheet iron. To stop the mill in case of a storm, turn the vane around at a right angle to the wheel, as shown by dotted lines in fig. 2. This greatly lessens the wind-resisting power. The whole apparatus may be held up on a tower by nailing the ends of supports to the drum; or by making a small,

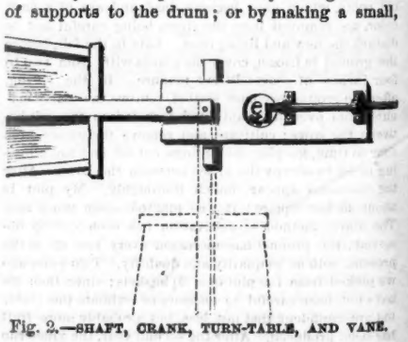


Fig. 2.—SHAFT, CRANK, TURN-TABLE, AND VANE.

square-topped tower, and letting the drum down through a hole. Make a swivel in the connecting rod to the pump, to prevent twisting of the pitman.

What About the "Cow Milkers."

It is very desirable to have some appliance for lessening the disagreeable work of hand-milking. We have been looking and hoping for such an implement more than a score of years as Editors, and more than twice that time as owners of cows. With a drove of cows to milk before and after school hours, when on the paternal farm, we tried to devise something that would *draw* the milk, especially from kicking and sore-teated animals. Straws, quills, and wooden tubes, with carefully smoothed ends were used, but discarded after one of them drew blood, and a fractious cow ran away with another and pushed it entirely into a teat. A friendly eye and ear have always been turned to those bringing to this office anything that gave the least promise of success. Probably not less than twenty devices have been examined, and we have travelled many a mile to look into and test various contrivances. Some have appeared feasible at first, but continued practical testings have always brought some unfavorable results.

We mention this experience to let it be known that the first party who will bring out a good practical cow milker will have the earnest good will of this Journal, and all the help it can give him. Such an implement, indeed, is one of the great wants of the day.* If seeking new business, we would give more for the patent of a successful, trustworthy implement that would milk the *millions of cows* than for a machine for any other purpose we this moment think of. From our earliest recollections of farm work, onward, only one more tiresome, disagreeable work comes to mind, viz., raking bearded barley from before an old-fashioned threshing-machine; *that* capped the climax! We say thus much to stimulate inventors to continue their efforts.

What of the Milkers now in Use?

During two or three years past, sundry tubes have been brought out—hard rubber, ivory, bone, silver, silver-plated; tubes to be used singly, and those united by flexible rubber pipes. They have been tried by three of our Editorial Staff, and by other trustworthy gentlemen. As these have been made so carefully as to seem to be incapable of doing direct injury, and as those of our Staff who have tried them have found them useful with sore teats, have discovered no direct injury in their own experience, and have not been able to say there is a decreased flow of milk from their continued use, we have allowed them to be advertised in the *American Agriculturist*—not with great confidence in their having much value, but partly because of the good faith of the advertisers, partly because they seemed incapable of injury in careful hands, and especially because, being inexpensive, we have hoped a wide trial of them might result in their favor. But we are not prepared to unqualifiedly recommend anything we have yet seen. Some recent reports have come of direct injury, shown by blood, when used by *unskillful* persons, proving that they can not be entrusted to the ordinary run of milkmen, or milkmaids. Careful, skillful owners are warranted, we think, in having one set on hand for *temporary* use for badly sore, or cracked teats, and we hope they will secure and personally experiment with them.

An important question is yet to be settled. The natural process is, suction by the calf, accompanied by the pushing, "bunting" motion. Milking by hand partly supplies this natural action. *But, will cows generally continue to secrete and yield a full supply of milk,* if it is drawn away quietly through milking tubes, supposing it to be always done with care. Some assert that they will. That is *the* question now. We are anxious to believe that it will be so, but frankly confess we are yet much in the dark. To settle this question, it will be necessary to have a long continued, thorough trial, upon a considerable number of cows, of known milk yield capabilities—part milked with and part without the instruments, and with such care in feeding, and other items, as to leave no questionable elements to vitiate the results. The trials, to be of value, must be made under the careful supervision of persons of good judgment, and entirely disinterested in any milking-machine, or patent. The Patentees of one or more of these milking-machines, if they have confidence in them, and we are sure some of them appear to be confident, ought to be able to secure such thorough tests. We think the subject of sufficient importance to warrant its being taken up by some State Agricultural Society, or trustworthy Dairy Association. Though not involving a chemical question, would it not be a legitimate work for the Conn. Agr. Experiment Station, for example?—having the trial say on Mr. Webb's farm, under the supervision of Prof. Johnson and his assistants? Other Institutions at the West and South might make similar experiments.

*The U. S. Census for 1870 reported 8,935,332 milch cows; the American Cyclopedia gives for 1874 a total of 10,906,800. There are doubtless at least 12,000,000 *Milch Cows* now. (probably nearer 15 millions). To milk 12 million, twice a day, with an allowance of only five minutes for each milking, requires a *daily* expenditure of time equivalent to 2,000,000 hours, or 200,000 persons to be constantly milking 10 hours a day. Allowing every person who milks at all to have, on the average, 3 cows, not less than *four million* persons go through the operation of milking twice every day, good cows, and bad, and indifferent. If *good* milking, by hand even, could be secured continuously, the product would be increased at least five per cent—an enormous sum in the aggregate—to say nothing of unpleasant work, spoiled tempers, and spoiled cows.

Very Gratifying Figures.

Any farmer, or any business man, who produces and sells more than he buys, is by so much improving his financial condition, provided he keeps up the productive capacity of his farm or business, and does not diminish his stock on hand. The same is true of a Nation. That the productive ability of the United States is increasing, despite some "wearing out of the soil," is evident. Millions of new acres are annually brought into cultivation; and there is also a yearly large increase of live stock, implements, machinery, etc. The statistics of our foreign trade have just been completed for the year ending July 1st, 1878, for the entire country, and they stand thus:

	July 1st, 1877, to June 30th, 1878.
Exports of Produce and Manufactures	$694,864,200
Exports of Gold and Silver	33,733,225
Total *Exports*	$728,617,425
Imports of Merchandise, etc.	$437,051,538
Imports of Specie	29,821,313
Total *Imports*	$466,872,846
Excess of Exports over Imports	$261,744,579

That is, during a single year past we have sent **$261,744,579** more to other countries, than we have received from them, and are so much richer, even though the money went to pay up our indebtedness abroad. During the previous year (ending July 1st, 1877), the excess of exports was $166,539,917, or a total excess for two years of **$428,284,596.** During *five* years, ending July 1st, 1878, the total exports of products, including gold and silver, amounted to $3,242,634,153, and the total imports, gold and silver included, were $2,585,415,658; excess in our favor, $657,218,495, or an annual average of $131,443,699. This total excess of exports over imports for five years nearly equals one-third of our entire National Debt. An annual excess of exports equal to that of the past year, would in eight years about equal the *whole* of the National Debt, allowing only for the principal.

Science Applied to Farming.—XLV.

The Ville Formulas and System of Manuring.

Of the numerous formulas for fertilizers for special crops, no others have attracted more attention than those of Prof. George Ville of Paris, whose investigations at the Experimental Farm at Vincennes during the past 25 years or more, have been discussed, and whose writings are read the world over. These formulas form a part of a system of manuring explained in Ville's books, several of which have been translated into English. An early one which covers part of the ground, and includes most of the bad and many of the good points of Ville's doctrines, has been lately republished in the form of a pamphlet, with the title "High Farming without Manures—Six Lectures on Agriculture." Another, later and more complete, is called "Chemical Manures." A third gives a brief exposition of the system, in the form of a dialogue, and has, I think, been translated under the name of "The School of Chemical Manures."

Ville's fundamental proposition is: "The profit from farming depends upon the quantity of fertilizers given to the land.....Without fertilizers the yield is small, the profit nothing, and the final result loss. With abundant manuring, the yield is increased, and the profit certain, for the excess of expense is but the half or the third of the price of the excess of the harvest crop."

The great problem for the farmer then is to get manure. The cattle he wants and can profitably keep for other purposes will not generally supply enough. More stock will be a burden, and the manure costly. Ville proposes chemical manures instead. In what he calls "The System of Agriculture which ought to Prevail," instead of cattle kept as a necessity for making manure for grain and other crops, he recommends to "buy manure, and raise such crops and keep as much or as little stock as will be most profitable."

The Essential Ingredients of Manures.—"Complete Manures."

According to Ville, of the dozen or more constituents of dung, FOUR—nitrogen, phosphate of lime (phosphoric acid), potash, and lime, which constitute about one-tenth of its weight—are "the regulators *par excellence* of production, and the only ones with which agricultural industry need occupy itself." His formulas for "complete manures" supply these four ingredients, the *nitrogen* as nitrate of potash (saltpeter), nitrate of soda, or sulphate of ammonia; the *phosphoric acid* in the form of superphosphate; the *potash*, in either nitrate of potash, or other potash salts, and the *lime* as sulphate of lime (land plaster). He says, that "the mixture of these substances has the same properties as dung." The "complete chemical manure is to the barnyard manure, what the metal is to the ore." "It is farm-yard manure divested of all useless matter."

The formulas which are made for different crops, based not upon the composition of the plant, but upon its assumed capacity for getting its food from air and soil, and the effect of the different materials upon its growth. "Each of the four regulating ingredients has its own functions which are of more or less relative importance, according to the nature of the plant to which it is applied...." No one can do any good without the coöperation of the other three (though if either is supplied in abundance by the soil, it need not be included in the manure.) Give the others, and each has its own predominant action for a certain list of crops.

"Dominant Ingredients."

Ville gives "the name *dominant* to the ingredient which, for a given crop, plays a more important part than the others." Thus:

"*Nitrogen* is the predominant ingredient for the cereals as Wheat, Barley, Rye, Oats, and for Colza, Sugar beet, Hemp, etc."

"*Potash* has an especial influence upon Peas, Beans, Clover, Lucern, Flax, Potatoes, etc."

"*Phosphoric acid* is especially beneficial for Turnips, Ruta-bagas, Radishes, Indian Corn, Sugar-Cane, etc."

"*Lime* seems to exert no especial preponderating action upon any plant, but is necessary for all."

The practical inference is that in preparing a fertilizer for a given plant, we must reduce the subordinate ingredients as much as we can, and put in a good deal of the dominant. To sustain his propositions, Ville cites a great many experiments; some made by himself in pots or in the fields of the Experimental farm at Vincennes, and others by farmers in France and elsewhere. In an experiment on wheat, for instance, one plot received a "complete manure;" from another the lime (sulphate of lime) was omitted, while the third had no potash, etc.

Fertilizer.	*Yield of Wheat per Acre.*
Nothing	15.88 bushels.
"Complete Manure,"	56.44 "
"Complete Manure," without "lime"	53.33 "
"Complete Manure," without Potash	40.44 "
"Complete Manure," without Phos. Acid.	34.66 "
"Complete Manure," without Nitrogen	18.18 "

The wheat suffered more from lack of nitrogen than from lack of any other ingredient. Again, with sugar-beets, starting with a complete fertilizer which supplied 360 lbs. of superphosphate, 180

lbs. of nitrate of potash, 270 lbs. nitrate of soda, and 360 lbs. of sulphate of lime, per acre, when more lime, potash, or phosphoric acid was added, the yield was not affected, but when the nitrogen was increased, the yield rose with it. From such experiments as these, Ville infers that nitrogen is the dominant ingredient for wheat and the sugar-beet, and consequently he puts a large proportion of it in his formulas for these crops. He insists, furthermore, that the form of combination is important, and uses sulphate of ammonia for wheat, nitrate of soda for sugar-beets, and so on. For clover, beans, peas, etc., he recommends little or no nitrogen, because these plants are found to get very little if any good from nitrogenous manures. He explains this by assuming that such plants get all their nitrogen from the air, and do not need it in fertilizers. Of the theory once held by many, that plants assimilate the free nitrogen of the air, Ville is now almost the only prominent defender. He claims that clover gathers all its nitrogen from the air; that barley and rye get 80 %, wheat, 50 %, and sugar-beet, 60 %, from the air, and the rest from the soil. This assumption, I think, has very little of experimental proof to rest upon. Much more investigation is needed to settle the question.

Concerning the mineral ingredients, phosphoric acid, potash, and lime, Ville's rule is to restore all that the crops remove, and a little more to make up for what is leached away by the water in the soil below and beyond the reach of the roots of plants. In this, he very strangely ignores the resupply which every soil keeps up from the decomposition of the materials it contains.

Ville proposes "complete manures" for all crops, but at the same time recommends farmers to test their soils by experiments, in order to find whether these already contain and can supply any of the ingredients, and if so, omit them from the fertilizer. He lays a great deal of stress upon these experiments, and gives very full directions for making them. Where chemical fertilizers are to be used as auxiliaries to farm manure, he recommends to use the dominant ingredient for the crop; thus, for wheat he would add sulphate of ammonia or nitrate of soda; for corn, or turnips, superphosphate, etc. Ville claims that

Chemical Fertilizers are Superior to Farm Manure

for several reasons: (1) They bring larger crops. In proof of this he cites several hundred experiments made by agricultural schools, societies, and private individuals, on wheat, oats, rye, barley, maize, potatoes, sugar-beets, sugar-cane, etc., in France, Belgium, Germany, Italy, and other countries. In 51 experiments with wheat, in which chemical and farm manures were compared, the chemicals brought larger crops in 47, less in 3, and the same in one case. In 92 experiments with sugar-beets the artificial fertilizers brought the best results in 67 cases, the dung in 20 cases, and both the same in 5 cases. In 32 experiments with potatoes, the chemical manures brought more than horse-manure in 25, less in 6, and the same in 1.—(2.) The chemical fertilizers are cheaper. To substantiate this, he makes extended comparisons between the cost in France of farm manure and the corresponding chemical materials, and calculates that the manure is the dearer by some six per cent.—(3.) Chemicals are always at command, and in just such kinds and quantities as are needed, the only limit being the amount of capital to be invested.—(4.) The ingredients of chemical manures are ready for use at once, while in yard-manure they are slowly available.—(5.) Chemical manures are more easily and cheaply transported, handled, and applied.—(6.) Chemical manures can be divided so as to use for each crop its predominant regulating ingredient, and in each case only what is needed. Thus, in a rotation, nitrogen can be used for wheat or oats, phosphates for corn or turnips, and potash for clover. Or, if the soil supplies enough of any one ingredient for any crop, it can be omitted from the fertilizer and its cost saved.

Continuous Use of Chemical Manures.

To the question whether chemical manures alone can be depended on and used with profit year after year, Ville replies, "Yes, under two conditions: 1st. Give the land in fertilizers more phosphate of lime, more lime, and more potash than the crop takes from it.—2d. Give it about 50% of the nitrogen of the harvest."

W. O. ATWATER,
Wesleyan University, Middletown, Conn.

A Flemish Milk Wagon.

A correspondent now travelling in Europe, sends a photograph of the milk cart common in the streets of Antwerp, Belgium, which we reproduce in the engraving presented above. For a dog to draw a cart is a curious thing for many readers, as also is the peddling of the milk from door to door by a woman, but is an ordinary sight in that country. The cans are of the ordinary sort, from which the milk is drawn by means of the dippers, the long handles of which are seen sticking above the sides of the cart.

Oleomargarine.

What it is—What it is Used for—Its Effects.

Though much has been published in the *American Agriculturist* on Oleomargarine, we give the following summary for the benefit of the large class of readers who show by their letters that they are not already familiar with the subject. *Oleomargarine* is made from the caul-fat of beef animals, by a process and machinery, which separates the fat from the tissues. So far it is clean, and, of itself, as clear suet, is unobjectionable; but some claim that dirty grease, and even refuse hog-fat are also used in the process. Manufacturers claim that it is identical with butter, because both are fat, and come from the same animal, and are similar in composition. A comparison will show the fallacy of this assertion. Oleomargarine consists exclusively of the three fatty compounds—stearin, olein, and margarine. All animal fats, of which butter and suet are chief representatives, are made up mainly of these three substances, though in varying proportions, and often with additions. Butter is composed of stearin, olein, margarine, butin, myristin, caprin, caproin, caprylin, and butyrin—*six* extra ingredients which are not contained in oleomargarine; and these extra six constitute something like ten per cent of the butter, and the aromatic flavor and other peculiar characteristics of the butter are mainly due to their presence.

It is claimed that the absence of some of the components of butter make the oleomargarine superior in keeping quality to butter. Be this is as it may, it does not make butter of oleomargarine.

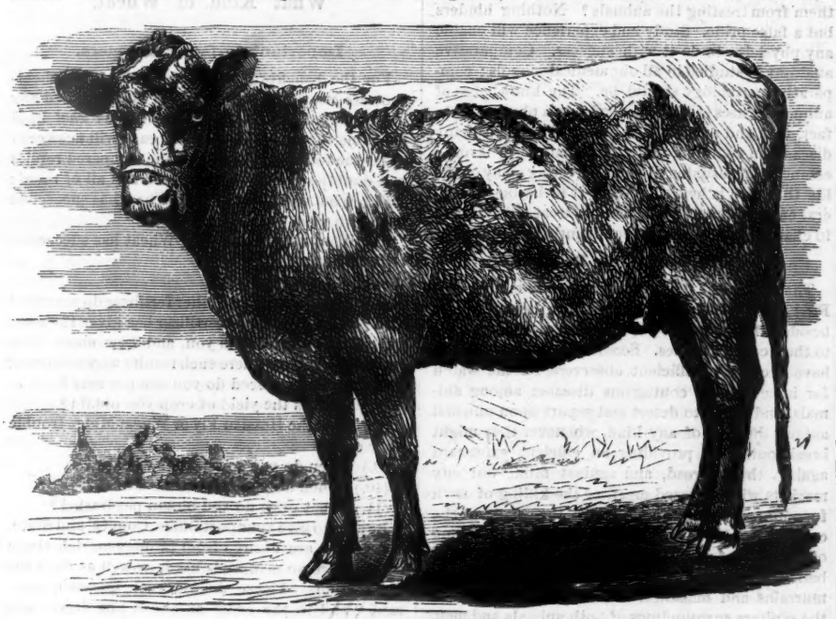
Butter is a product peculiar to the udder of the cow, and is obtained by separating from the milk, by churning, the fats which compose it. Oleomargarine is formed in other tissues of the animal, is composed of different ingredients, and is separated by heat and processes which produce a different result. Though chalk and marble have nearly the same constituents, yet chalk is not marble, nor is marble chalk; even so oleomargarine is not butter. Oleomargarine is then essentially tallow, or other fat prepared by churning it with a little real butter to form a product which has been often sold for butter—now, fortunately, prohibited by law in some States. Oleomargarine quite closely resembles butter in appearance; but it has a peculiar, strong taste—unmistakable after it is once tried—and leaves a sticky disagreeable sensation in the mouth, similar to that caused by greasy soup; this bad flavor can be tasted for hours after eating it. For cooking purposes it may serve as a substitute for poor butter, and may even be used upon the table by those who are not particular in such matters. It makes a pastry, which, though good enough while hot, is very tough when cold. A very large amount is sold in the markets of the country, for use in cooking and for table use in cheap restaurants, and by the poorer classes. The usual price for this "butter" is 15 cts. per pound. Much is also used in cheese factories to take the place of the cream used for butter-making. The product is sold as whole milk cheese, when not prevented by law or the honesty of dealers; and large quantities are shipped abroad as American cheese.

The effects of such a product in the market are great and manifold, as often pointed out in the *American Agriculturist:* Its low price seriously affects all the lower grades of butter and cheese; it imposes on the public a sham for a reality; it endangers our foreign markets for good dairy products; and all of these will in turn have other and deleterious effects, which any one can trace. The remedy is simple: let every State, that has not done so, by law compel its sale under its own name, and let dairymen combat it in the market, by not making either butter or cheese which can be compared to it, but produce only superior articles, and get the better price they are sure to bring.

Bees, Bee Keepers, and Honey.—The annual convention of the National Bee-Keepers' Association will meet in the Cooper Union, N. Y. City, on the 8th of October, at 12 noon, and a show of bees and their products will be held at the American Institute Fair on and after September 20th....As to shipping honey, a prominent dealer informs us that the supply of honey now in market, and on its way thither, is so great as to practically overstock the market, which fact should induce farmers to hold their stock for a while.

A Norfolk Polled Heifer.

We recently gave a picture of a Norfolk polled cow. Herewith is presented a portrait from one published in the "Agricultural Gazette," (Eng.) of a heifer of this breed: it is Rosebud 2d; dam, Rosebud 1st; sire, Rudham Hero; bred by Mr. Savory of Rudham Grange, England. The breed is attracting considerable notice in that country, and a Herd-book has been established for the protection both of breeders and purchasers, as well as for the preservation of the purity of the breed, which is worthy of introduction and cultivation in America. The dairy interest is growing to an enormous extent, and in its developement over greatly differing localities, there is not one really good kind of dairy stock that may not find a place, in which, for certain purposes, or to suit certain tastes, or necessities, it may surpass all others in form and usefulness. That the Norfolk polled cattle desire the high reputation they possess, is proven by the fact that at the commencement of the herd-book, more than seven hundred carefully bred animals were offered for entry. There is but one full herd of them in America—that imported and bred by Mr. Taber, of Patterson, N. Y.—with a few scattered animals in different sections. From the numerous enquiries made concerning them since our previous illustration, it seems that they are exciting considerable interest. This would be augmented if a few energetic importers of other cattle would turn their attention to these. That such ventures would be profitable, seems to be quite certain, considering the prices realized for Jerseys at every importer's sale. It is not alone as dairy cattle, that this breed deserves notice: the illustration shows that these animals will produce beef as well as milk. The deep brisket, the full fore-quarter, the rounded barrel carrying a full loin, and the general symmetry would not disgrace a short-horn of the first families. To produce good milch cows and excellent beeves is sufficient to give character to any breed; but when in addition it has the advantages of being easily kept on moderate pastures and feeding, and being without the dangerous and useless horns, it becomes still more valuable and desirable. With the present outlook



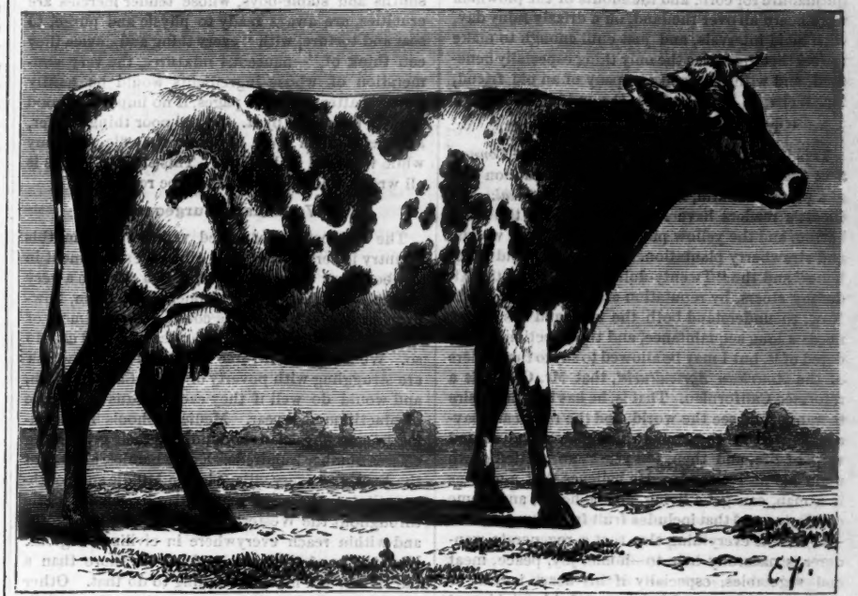
NORFOLK POLLED HEIFER.

for an extensive trade in beef and beef cattle, their characteristics will carry much weight in the choice of live stock for both milk and general farming.

Agriculture by Irrigation.—The cultivation of land by means of irrigation is gradually extending in Colorado, California, and other localities. In the colony of Greeley, Colorado, 250 water rights, representing 10,000 acres of land, were sold in 1877, and the present year 290 rights were disposed of up to July. As progress is made and experience gained, or better methods are practised, the water is used with more economy, and the breadth of land that can be watered is consequently enlarged. So far, streams only have been utilized, but it is now proposed to make use of the water of occasional floods by confining it in reservoirs. In this way the supply may be largely increased, and hundreds of farms made in places that are now barren, not only because they are deficient in water for three-fourths of the year, but because they are torn and devastated by freshets, and inundations at other seasons, when the water would be useless for vegetation. It will doubtless be but a short time before agriculture will call for the services of engineers, to make available the practically unlimited opportunities for impounding water in the mountain valleys, and using it for irrigation. We hear already of such intentions in the valley of the Arkansas, which possesses a supply of water sufficient to convert its present dry fields into gardens for several hundred miles along its course.

Cross-Bred Jersey-Ayrshire Cows for the Dairy.

Which is the best cow for farm and for family use? Where the farmer uses his cows for butter making, experience would go to show that the grade Jersey



CROSS-BRED JERSEY-AYRSHIRE.

is essentially the farmer's cow, a fact widely appreciated. The mark of the Jersey is now noticed on every hand in the beautiful and picturesque colors and graceful forms of the cows seen grazing in the meadows, and dotting the pastures. No other cow is so easily kept, or more docile, or gives a richer return in butter for the food consumed, than the grade Jersey. But something depends upon the cow from which the grade is raised. Unless the dam of the cow is a copious milker, and is able to transmit this quality to her progeny, the principal end sought in the crossing is missed. The Ayrshire is the most prolific milk cow. For large yields, and for easy keeping, she is unsurpassed. To cross an Ayrshire cow, with a well selected Jersey bull, ought to give the best dairy cow that can be readily produced. The large milk yield of the Ayrshire, is united with the large cream yield of the Jersey, and we have all we can procure in one way from the Jersey, multiplied by the excess of the yield of the Ayrshire. Herewith we give a portrait, the first ever published, we believe, of a cross-bred Jersey-Ayrshire cow. This is a young animal, a few days over two years old, but has been milking for five months, and has produced over one pound of butter per day from a little more than eight quarts of milk. She was bred by Mr. Thomas Fitch, of New London, Connecticut, a gentleman who has been experimenting in crossing the Jersey upon every known breed of cow, including the "Sacred cow of India," for over 30 years, and who long ago settled upon the Jersey-Ayrshire as the best cross possible for large yield and rich quality of milk. The cow in question is a white and brindle in color, with a golden yellow skin which shows through the fine short silky hair at every place where white prevails. As a proof of the easy keeping of this class of cows, the original of the illustration has been kept in excellent condition from the mowings of less than half an acre of lawn with two quarts of middlings daily; and upon this feed has been, and is, producing a little more than one pound of butter per day. For so young a cow this performance is worthy of being recorded among those of the many good cows whose portraits have from time to time been exhibited in the *American Agriculturist*. It is evident that this is one of the best cows for the farm and for family use.

Among the Farmers.—No. 32.

BY ONE OF THEM.

When the strawberries were in blossom, and rye not yet in the ear, and when men were getting out the manure for corn, and the shouts of the plowmen were heard all over the land, on a drizzly rainy day, with lucid intervals, and just chill enough to make us feel that grass was the only thing especially benefited, and with the good company of an old friend, Mr. Wells, of Wethersfield, the writer visited

"The Ranch" of James B. Olcott.

This is Wonderland to the readers of the *Connecticut Courant*—a land of mysterious production and of a peculiar charm, not well defined, but *real*. Mr. Olcott's readers have learned all about the sand barren, and the yellow pines, and scrub-oak woods, and strawberry plantation. They know "Old Ringbone" and the "Twenty-dollar horse," and the Alderney steers, by reputation at least, and so did I. Now, to understand both the man and his home, needs a long acquaintance, and the affection engendered of it, but I may be allowed to say to the readers of the *American Agriculturist*, that Mr. Olcott is a reformed Californian. That is, he has had the desire to wander and see the world, and the rough and savage, as well as the smooth and placid waters and ways of life, and then, ten years ago, settled down upon his native sands. He believes that a man as is a man, can get a living, and a home, and home comforts—and that includes fruit from June to June—as well as everything else that a regenerate wanderer is naturally heir to—home, joy, peace, meat and vegetables, especially if his heart is full of the milk of human kindness, and his stables of Jersey cows—provided he goes to work the right way, on almost any kind of soil.

Well, we caught him at home, or he caught us, and no Tartar either way. He had big boots of rubber or well-grained leather, which furnished us for a tramp through the wet grass; and we inspected the strawberries, the grass land, the big patch of sand-barren he was reclaiming with 40 or 50 loads of beautiful leaf and stable-manure compost to the acre, the low woods which were annually robbed for the leaves, and many other interesting things. We inspected the house of his own planning and building, with the dairy and stables adjacent, which are quite too close for any but people who love neatness and hate ill odors; and we partook of a frugal lunch, served by the gentle housemother and her daughters, and seasoned by kindly welcome and instructive talk.

Mr. Olcott built his house with much of Donald Mitchell's sentiment, for a combination of the useful and beautiful—that is, making beauty a thing of use, and useful things graceful and fair; and so he carries on his work, a useful sentimentality pervading both his composts and his letters. It is framed into his buildings and recognized in the width of his doorway and the breadth of the grass-plat, in the weedless garden, in the kindly whinny of Ringbone, and the contagious laugh of the proprietor of the "Ranch."

One thing surprised us, there was less of what one may call sandy-land farming—that is, plowing in of green manure crops, agonizing after organic matter in the soil (which is always disappearing), and the use of crops known to flourish in light soils, like cow-peas, for instance. Manure from the barnyard, which was really one great compost-heap, is Mr. Olcott's dependence for crops of all sorts. The supply of this is augmented in every possible way, but chiefly by leaves from the woods. This robbing of the woods checks their growth in a great measure. Yet we may surely take our choice, when we have it, between promoting the growth of timber, and increasing the yield of corn and fruits.

Treatment of Ailing Animals.

If there is any one thing which gives a real distress to a humane man, it is sickness and pain in a dumb brute which he can not alleviate. If his children are sick, he or his wife, or the good grandmother, has knowledge and nostrums which are administered with some confidence—"simples" which are useless and harmless, or possibly beneficial. If these fail, they usually have near at hand

"*The Village Doctor*, * * * *
Whose ancient sulky, down the village lanes,
Dragged like a war-car, captive, ills and pains."

If, however, the animals are sick, we have no one to turn to—cow-leaches and horse-doctors, blacksmiths and stable-boys, whose tender mercies are cruelties, are aways ready to physic and purge, to sear and torture, with "every thing and device they can think of,"—nauseous mixtures, the very enumeration of whose ingredients would be hardly fitting matter for these pages, if no important good were to be gained by it. So the poor things suffer, and get well in spite of us, or they die in agony while we stand by helpless. This state of things is all wrong, and might and must be remedied.

Veterinary Surgeons.

The number of educated veterinarians in this country is very small; they all find employment in or about our large towns, and as a rule are a very respectable class of practitioners. To them, however, whenever we can, we confide the treatment of our live stock; but not one farmer in 10,000 can do so. We have two or three veterinary schools which are struggling with poverty or lack of appreciation, and would do well if they each graduated a score of practitioners a year. Medical schools for training human physicians abound, and their graduating classes number hundreds. Every hamlet, almost, at the East, and every village in the Middle and Southern States, has its educated physician; while throughout the Western States they are numerous, and within reach everywhere in civilized regions. Nine-tenths of them are making no more than a fair living, and many are failing to do that. Other professions and callings tempt them from their own that they may get better pay. Not that they do not love their profession, nor that they are not qualified to practice it, but it will not support them.

Why Should Not Physicians Treat Animals as well as Men?

If a physician has all he can do to treat ailing humanity, certainly the animals must be neglected; but when, as at present, the "doctors" are making a poor living, or none at all, what should prevent them from treating the animals? Nothing hinders but a false pride. Study and experience will enable any physician to do it with success. Comparative anatomy is studied in all our medical schools; comparative pathology should be. The knowledge of animal diseases is of great service to a physician. In fact, man and animals are found to have so many diseases in common, that animal pathology is quite essential to reasoning upon, and treating many of the ills that man is heir to. Were it to become a general custom among physicians to treat animals, and to charge for it, we might confidently anticipate the

Most Gratifying Results.

These, or some of them, I venture to enumerate. First, the physicians would make a better living; besides, they would at once become more important to their constituencies. Second, the country would have a corps of efficient observers, on the watch for infectious or contagious diseases among animals, and quick to detect and report upon unusual animal diseases of any kind, whenever they might break out, thus providing an efficient safeguard against their spread, and against filling our city markets with diseased meat, or the killing of such for country consumption. Third, the wealth of the country would be increased at once by the saving of the lives of many animals, and ultimately by the better understanding and prevention of various murrains and maladies. Fourth, improvement in the sanitary surroundings of both animals and men, and a much higher degree of health and soundness.

Effect of "Fertilizers" in Moist Seasons.

The present season has been an exceptionally favorable one for testing fertilizers. At least I have found that, so far as I can judge, they have produced up to the time of writing, very nearly a maximum effect. There is a danger, unless comparative trials are made with different fertilizers, of overestimating the excellence of those we do try. I have one standard kind applied liberally to corn and to mangels, and its effects are so extraordinary that, had I not other rows of corn and roots which look now equally well, though manured with other articles—I should not say equally well, perhaps—and yet one patch looks as if it would produce just as much as the other. I observed one curious result. In planting corn, 20 rows were manured with superphosphate *in* the hill; 20 *upon* the hill after planting; 20 rows upon the hill and hoed in after the corn was up, and 20 more after the corn was three to four inches high. The only notable result was that the second 20 rows had to be replanted; not one quarter of the hills did more than sprout, and then the plantlets' kernels softened, a very few making a struggling life. After replanting, the corn did well, and now makes a good stand. I get about half the result from superphosphate harrowed in broadcast with corn, for fodder, as when applied to corn in drills—that is, when the fertilizer was scattered in the furrow, and corn sown in and covered. I am confident that although that in drills was put in a week later, there is now fully twice the burden of fodder upon the land that there is upon the broadcast piece.

Usefulness of "Sludge Acid."

The readers of the *American Agriculturist* probably know of the hue and cry that has been made in New York about the use by the fertilizer makers of what is called sludge acid—that is, the sulphuric acid which has been employed in extracting the impurities from petroleum, and which by the process becomes highly charged with oily matters, and emits a nauseous odor. The superphosphate of lime made with this retains to a considerable extent its peculiar, pungent, "aromatic," and very disagreeable odor. Now, insects are sensitive to odors, and I find that wire-worms avoid potatoes where this fertilizer is used, and that my corn has not been troubled with cut-worms and white grubs where this was on or near the surface. I attribute the freedom to the presence of the sludge acid used in the manufacture of the superphosphate, and am confident that it does no harm to the plants.

What Kind of Wheat.

Important to Grain Farmers.

For the benefit of our readers who are wheat-growers, we would like each one who has tried any one or more known varieties to write us *what* kind has done the best with him. If each will answer in order the following questions, the compared replies will doubtless be of value to each and all of them:

(1.) What variety of Winter Wheat has succeeded best with you?

(2.) What variety of Spring Wheat has succeeded best with you?

(3.) What is your soil?

(4.) What manure and other fertilizer do you use?

(5.) What manure or fertilizer has given the most satisfactory results with you, and how much have you used per acre where such results were obtained?

(6.) How much seed do you use per acre?

(7.) What is the yield of crop you obtain?

(8.) Does the Hessian Fly or Wheat Midge trouble your crop?

(9.) When do you sow winter wheat?

(10.) When do you sow spring wheat?

(11.) What price do you obtain per bushel?

Be sure to give your post-office, County, and State.

Answers are desired from farmers on rich virgin soils, where no manure is used, as well as from the old sections. Please answer each question separately, and in the order as above put down, and write the *number* against the answer given to it.

Grazing Pastures.—When a pasture is insufficiently grazed, considerable of its product is wasted. The tufts of uneaten herbage which often cover a large portion of the surface, are not only left useless, but injure the next year's grass. To keep a pasture in good condition, the droppings should be evenly scattered once a week, and the

fouled spots be sprinkled with plaster. In addition, it will pay to follow cattle with a few sheep, which will clear off the spots left by the cows. The finest pastures are those kept the most evenly grazed; and to secure this, grazing lands should receive constant attention from the first to the last of the season. But close cropping, by animals which are not all the time in the pasture, will, after a while, exhaust it; to provide against which, 150 to 300 lbs. per acre of fine bone or superphosphate, should be applied yearly in the fall or early spring. The phosphates are first exhausted from pastures; an average cow requiring about 100 lbs. of phosphoric acid in her milk yearly, and growing animals a large amount for their bones.

Talks on Farm Crops.—No. 19.

By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.

We had a trial of a new binder. After the people had gone, the Deacon remarked: "Well, it did the work better than I expected. It did not tie the bundles quite tight enough to suit me, but I suppose that can be easily regulated."

"One thing is certain," said I, "binding by machinery is an accomplished fact. There are several machines that do the work well. Which will prove to be the best remains to be seen. This one ties the bunches with string instead of wire, for which many will prefer it. Before I buy a machine, however, I will wait to see if some one can not invent a binder that will bind corn-fodder as well as wheat, barley, oats, timothy, millet, etc. We have cut corn-fodder for several years with a reaper. It does the work *better* than it can be done by hand. It cuts the corn, and throws it off into bundles ready to be bound, and if the machine would also bind it, I would raise 20 acres. I would drill it in rows 2½ or three feet apart, cultivate it thoroughly, and cut it during hot weather—early in September; put the bundles into stooks, as we do wheat, and let them stay until well cured."

"Is not that," remarked the Deacon, "easier said than done?"

"No. I have managed corn-fodder precisely in that way, and do not wish for better feed for milch cows, sheep, or horses. *But* I have also had considerable trouble in curing and handling it. I have had part of a field where the crop proved every way excellent, and part where it was almost worthless; and that is not all, the poor fodder entailed twice the labor of the good. Why this difference? Simply because one was cut in the last of August, and the other two or three weeks later. The one was thoroughly cured during hot weather; the other grew larger, and was more difficult to cut, and the weather being cooler, with more or less rain, it was not fully and quickly cured, and lost much of its color and sweetness.

"I have not tried it, but I feel pretty confident that a crop of corn-fodder, if sown early, of an early, small variety of corn, and cut early, can be cured in August or early in September, so that it can be put in the barn or stack. The Germans call it 'Maize hay,' and I believe it can be so well cured that it will keep as well as clover or timothy. Why not? I have corn-fodder that is to-day (July 24th) as thick and heavy as it can stand on the land. It is in drills, 35 inches apart, and it is almost impossible to walk through the rows. Now, if such corn-fodder is cut the first week in August, and tied up into sheaves as we do wheat, and put in rather open stooks for a week or ten days during one of our 'heated terms,' there would be very little more sap in it than there is in clover hay. Stow it away in a stack holding, say ten tons, and do the work during a bright, hot day; and if you are afraid it will not keep, put a layer of dry straw between each layer of bundles of fodder, and finish off the top of the stack with straw."

"Or," said the Deacon, "put it in the barn at once, and have done with it."

"That," said I, "would sometimes save labor, but all of us have not barn room to spare at that season; and if the field is some distance from the barn, it is quicker to stack in the field, and draw in the fodder when we are not so busy as now."

"Busy as now," exclaimed the Deacon. "I hope not! We have not had such a busy harvest for years. Everything ripened up at once. Wheat was ready to cut before we were half through haying. Then the bugs were on the potatoes, and the weeds in the corn, and an extra man could not be had for love or money."

"It is your own fault, Deacon," said I; "there are men enough if you would only take the right course to get them. I have heard you remark again and again, 'If a man comes here we have got to support him. He has got to have a living, and he will get it out of us.' And yet every year you go through precisely the same experience as you have this year. It is nothing new. It is so every harvest, only you forget from year to year. Next spring you will forget again. If a man wants work, you will say, 'I guess I can get along without you,' and you send the poor fellow into the city. He would be glad to work for 75 cents a day, and board himself. But you depend on hiring an occasional day hand. You leave undone much work that could be profitably done, and when the pinch comes you look around for your day men and they are not to be found. The Squire wants them, I want them, and others want them. One man told me that there were eight farmers after him one morning last week before breakfast. You offer $1.50, $2.00, or $2.50 per day, and board, for men and boys not actually worth 75 cents a day. And *you will do precisely the same thing next year.*"

"Well," said the Deacon, "I have made up my mind to hire an extra man next spring."

"I am glad to hear it; but that is not just what I want to see done. I want you and the Squire to encourage more good, steady, sober, industrious married men to settle in the neighborhood. The value of farm property, other things being equal, depends on the population. Our profits come from labor and not from land. We want more men."

"That is so just now," said the Deacon, "but it is not so in winter and spring."

"As a matter of fact," said I, "we had more men at work on this farm last December and January than we had during harvest, and still more in March, April, and May. There is no necessity for this fluctuation in the demand for labor on our farms. Unsteady employment and high wages are utterly demoralizing. But one thing is sure, we shall not lower wages by refusing steady work to steady men, and thus compelling them to turn tramps, and then paying high wages to some miserable scallawag for two or three weeks in the busy season. The system is all wrong. It makes young men idle, impertinent, unskilful, and vicious. There is work enough for all, and there are men enough to do the work. But the less we do, the less there is to do. If we plant less corn, there is less to cultivate and husk; and the same for other crops and in other industries."

I know that this is not talking about "Farm Crops." And yet the subject lies at the foundation of our agriculture—if not at the foundation of our national prosperity. I will not say that the cities need less labor, but I am sure the country needs more. How are we going to get it?

Do not be afraid to sell a good steady man an acre or two of land, and let him put up a small house. Or, if you prefer it, put up the house yourself and rent it to a good man, and give him work. And give his boys work. Geo. Geddes once told me, "The only way you will get a foreman is to raise him." And the best way to get good farmmen is to let them grow up on the farm. I have two boys that were born on this farm, and that have worked for me ever since they were able to work at all. They know my ways—know the land and the stock, and the implements and machines, and every year they become more useful and valuable. They are happy and contented, and will in time have farms of their own; and better still, know how to manage them and take care of good stock.

A young man is far better off on a farm than in a city. Farming is no longer the dull, plodding, uneventful, dreary existence that we read about. There is sufficient hurry, pressure, and excitement to stir the blood and stimulate the efforts of an energetic boy or man. Our seasons are so short that a farmer *must* work lively. Whatever his hands find to do, he must do with his might. He must battle with the winds and storms, with rain and snow, with heat and cold. He must fight if he would win. He must be a plucky man. He must work with a will. If there is no *snap* in him he had better find some dull, steady, slow, unvarying employment in the city. He is not the man for modern agriculture. Our work is constantly changing. It is rare that we have three days of steady labor. We have in the spring to plow for barley, then harrow, then drill in the seed. Then sow clover seed. Then roll. If it rains, we go into the cellar and get potatoes ready for planting. When the stubble land is too wet to work, we plow on the sod. We have oats to sow, and corn, potatoes, and beans to plant. We are beginning to use more or less artificial manures. We are raising more mangel-wurzel and other root crops. We are constantly getting improved implements and machines, and needing more intelligence and skill in our operations. We have not time to get tired of putting in the crops, and of hoeing and cultivating before the grass is ready to cut; and a bright boy can relax his muscles by riding on a new mowing machine. Then comes the harvest. But what is haying and harvest compared to what it was when I was a boy? If we got through in six weeks we did well; now, with mowers and reapers, and rakes and unloading forks, we can do double the work in half the time. If a shower stops us we "green" the potatoes. Then there is the excitement of thrashing with a steamer. And all this time the weeds are calling to us, "be quick," "be quick,"—"we are after you," "we are after you." And if we are not lively they will catch us, and then we get a sound thrashing, which, if we are men, will make us work livelier another year. There is no time or chance for dullness on a properly managed farm.

"But what has all this to do with the labor question"? More than any of us realize. We want better men. And to get them, we must commence with the boys. We must get more married men into the neighborhood, and give their boys a good agricultural education on the farm. We must teach them. If you have a boy loading hay and *two* men are pitching, do not take delight in throwing the hay just where the boy does not want it. Put a good forkful on the corner, and another to bind it. The pitcher, if he is a *man*, can do half the work for the boy. Then in unloading, instead of the two big men standing on the top of the bay looking at the boy pitching the hay up to them, let one of them help him to unload occasionally. I have known two men and a boy drawing in hay; the boy was unloading. I had a spare man, and sent him to the stack to help. Where do you suppose he went? Did he help the boy? No. He got on to the stack and looked down at the boy, pulling and working at the load of hay below! And that is as much sense and manliness as you will find in half the old-fashioned common farm hands. Then when the load was off, if the men wanted a drink of water, the boy must go and get it for them. We must raise a better class of men. Look at the boys. They will soon be men. It will pay to educate them. Do not give them the poorest tools. If you have a new plow let the boy take it. Do not ask him to do the hardest work, or if you do, relieve him as soon as possible. These two boys I speak of will do anything I ask them. When thrashing with a machine, if there were two men and one of these boys on the straw stack, if anything should happen requiring two hands, and I called the boy and one of the men down, the chances are that the other man would think he could not take away the straw. He would give up the ship; but I could safely take the two men away and leave the boy. I could depend on him to strain every nerve and muscle to keep the thing going. He would know that I would relieve him the first moment there was a chance. I have had him in just such a situation more than once, and when I have gone to his assistance, he did not relax his efforts, but the expression of his face said plainly, "I knew you would come." He held the fort, and will do it again whenever I ask him.

Hints and Helps for Farmers.

TEMPORARY WHIFFLE-TREE.—One of the very annoying conditions in which a man occasionally finds himself is when he breaks a whiffle-tree away from home. A subscriber sends a plan of relief from the fix as follows: Procure a piece of the best timber to be found of the proper length; hew it down, and notch it so as to fit the clevises as shown at *a*, fig. 1. The clevises are attached as shown at *b*, and the happy man can go on his way rejoicing, if only he has an axe with him. This he will always have if he follows the hints given in the *American Agriculturist*, that no one should go from home with a team or carriage without one, and also take a coil of copper wire, and a spare bolt or two.

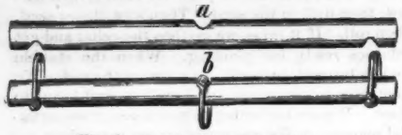


Fig. 1.—CHEAP WHIFFLE-TREE.

A BARN CLOSET.—A very useful closet may be made in the corner of a barn or stable by nailing to the wall a common packing box, which can be procured at any country dry goods store for a few cents. The cover is fastened with hinges, and serves as a door for the closet. Two shelves may be fitted in the box. A place is thus provided for storing away the small odds and ends lying about a barn or stable, where they may be kept clean, and can be found in a moment when wanted. The closet, as it will appear when fastened up, and resting upon a cleat at the back, is shown at figure 5.

A WATER PAN FOR CHICKS.—To prevent young chicks from fouling the water in the saucers in which it is given to them, take a common fruit can, remove the top, and cut notches in it as shown in the engraving (fig. 4). The chicks can reach the water, but they can not foul it by running through.

A RAKE FOR A STABLE.—"A. W. L." sends a hint in the form of a sketch of a rake and scraper combined, which he uses to clean out his stables. The rake-head is a strong piece of hard wood, beveled on one edge, and furnished with teeth upon the other. It is fitted to a proper handle, and will serve to rake out half-used litter or manure, to scrape the floor, or to push the manure into heaps for convenient removal. It is illustrated in fig. 2.

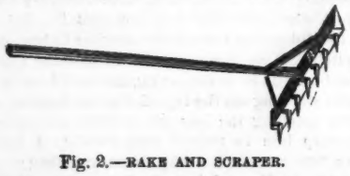


Fig. 2.—RAKE AND SCRAPER.

HOME-MADE SAW-BUCK.—A "Reader" gives us a sketch of a very serviceable "buck" for sawing wood, made of four pieces of round wood. These are hewed into the form shown at fig. 3; a two-inch hole is bored through one of each pair of legs to receive the trimmed top of the other leg, and the legs are joined in the usual manner by a two-inch cross stick tightly wedged at each end. To prevent the legs from coming apart, the holes for the cross stick may be bored so as to slightly notch the leg, which is then held firmly by the cross stick, and can not work loose readily.

Fig. 3.—SAW-BUCK.

MANURE DUMPING.—Yokes wear out and break sometimes, and the writer has recently seen a capital use for them when broken. The piece was attached by a chain and staple to the axle of an ox-cart, and was used as a rest or runner whereon to place the tail of the cart in dumping. Only a part, say a quarter of the load, is wanted in one heap, so the cart is tipped up, a portion drawn out over the tail-board, then it slides along on its yoke-runner to where the next heap is wanted, and so on. The runner, when not in use, will take care of itself, or may be hung up under the cart-body. The illustration, fig. 6, represents one seen on the Welles brothers farm, Wethersfield, Conn.

Value of Sheep as Manure Makers.

Pasture alone is not sufficient to maintain sheep in profitable thrift, especially in the approaching breeding season; in addition, a daily ration of grain is needed. When the pasture is poor the quantity of grain should be liberal. With good pasture, a pint of mixed corn and oats, or rye and buckwheat, is little enough; with poor pasture half as much again would be required to keep full-grown sheep or growing lambs in proper condition. In some sections cotton-seed meal is coming into great favor for feeding sheep on poor pastures, a half pint being fed to each one daily. It is a nutritious food, and makes an exceptionally rich manure; and *the quality of the dung of animals as a manure always depends on the quality of their food*, for the dung is only the food, changed by the processes of digestion, less the portion taken into the system as nutriment. There is a mistaken idea, which has been fostered by writers who know little about sheep, that these animals have the unusual capability of living upon weeds, briers, brush, and coarse herbage, and not only of getting fat thereon but of greatly adding to the fertility of the poor soil. A sheep, however, has no power to make something out of nothing. By reason of its fine mastication, and its vigorous digestion, it can, perhaps, exhaust its food of more of its nutriment than any other animal except a fowl; and its manure, by reason of this finely comminuted condition, rapidly decomposes, and is at once effective as a fertilizer. To make our flocks thrify—to secure strong lambs, heavy fleeces, and good mutton—we need to feed the sheep, and we must do this if we would turn the flock into vehicles for spreading manure and enriching the soil. It is a fact, that sheep supplied with a regularly given ration of one pint of grain per day, besides pasture, made in 80 days, 20 lbs. each more weight than a flock on as good pasture without grain; and the value of the extra flesh more than paid for the grain. In addition, the fleece made more growth, a large proportion of the ewes conceived twins, and the lambs came stronger and were better supplied with milk. And, as a matter of course, the droppings of these sheep must have been richer in fertilizing value than those of poorly-fed sheep. The good shepherd careth for his sheep, and he has his reward in the richest return that can be made by any of our farm animals, for the food and care given. Instances of the successful use of sheep as fertilizers of the soil are given so frequently, but without any reference to the methods of their use, that it has become a general belief that nothing else is needed to make a poor farm rich. But if any novice is led to try it for himself, both he and his flock will come to grief.

Fig. 6.—TO DUMP A MANURE CART.

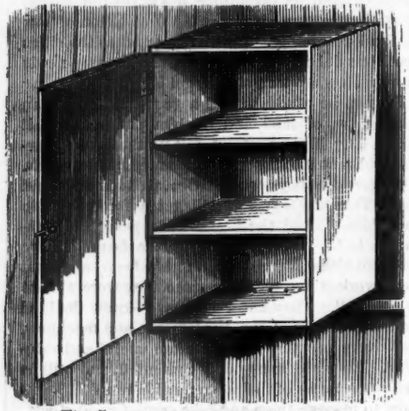


Fig. 5.—CLOSET MADE FROM A BOX.

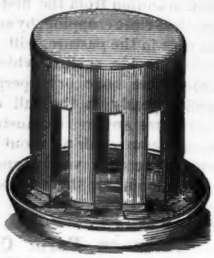


Fig. 4.—POULTRY WATERING DISH.

How to File and Set a Hand-Saw.

When a saw is in bad order, the teeth are irregular in length, and pitch, as in figure 1. This occurs through improper filing, and results in the saw working hard. The reason is that a saw irregularly filed, or set, cuts only with the longest teeth and those that have the most set. To remedy these defects, it should be pointed and filed until the teeth are all of even length, and are pitched so that the front of each tooth is at right angles with the back of the saw, as seen at fig. 2. The saw is fastened into a clamp (see fig. 6 on opposite page), which consists of a pair of jaws fixed upon a stand, and moved by screws as shown. An end view is given at fig. 3. The ends of the teeth are brought to a level by running a flat file lengthwise of the blade. The best form to give the edge is a slight curve from end to end of the saw, making the middle slightly rounding *outwards*, never hollow. The handle of the saw when in the clamp should be to the left, and not be changed during the filing. The part held in the clamp should be filed completely before being moved, if the jaws are not long enough to hold the whole. On a rip-saw, the teeth will be filed square, as shown at *a*, fig. 4; on a cross-cut, they are beveled upon alternate sides, as also shown in fig. 4. Both sides should be filed without moving the saw, which may be done by changing the position and manner of holding the file. A beginner should provide a handle at least a foot long for his file; this will enable him to hold it steadily, which is very necessary for good work. The proper size for a file is 3½ inches long for a saw having eight teeth to the inch. A saw is set before it is filed. The set given for easy cutting should be such as to make the cut as wide as twice the thickness of the blade. Several good sets are sold at the tool shops which are self-regulating, and make even work. The set of a cross-cut saw will make it appear as at fig. 5 when looking lengthwise at the teeth; and an even channel should be seen in which a knitting needle could be laid and moved from end to end. If only a few of the teeth are short, they need not be pointed, but may be

Fig. 1.—A SAW IN BAD CONDITION.

Fig. 2.—SAW PROPERLY FILED AND SET.

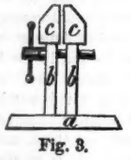


Fig. 3.

Fig. 4.

Fig. 5.

touched with a few strokes at each filing, until the rest are worn down to them. If one has no clamp, a strip of hard wood may be laid upon each side of

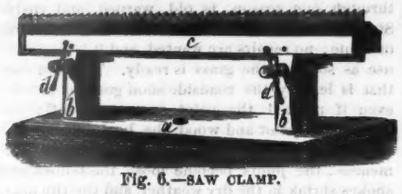


Fig. 6.—SAW CLAMP.

the saw, and the whole held tightly in a vice. In filing, the strokes should be made *from* the operator, and not towards him. The file should be grasped firmly in the right hand, while the tip is held lightly between the finger and thumb of the other. A safe rule is to work slowly, and to test the teeth as the work progresses with a try square. As long as the faces are kept at right angles with the blade of the saw, the backs must come out right. "W. D.," of Beaver Co., Pa., sends some of these suggestions.

Raw-hide Horse Shoes.

A method of shoeing horses with raw-hide, has long been in use on the plains, and found so serviceable and convenient that it might doubtless be found useful in many places where there are long periods of hot weather. There are also cases frequently occurring, in which disease of the feet might at least be alleviated by the temporary use of shoes cut from raw-hide or properly prepared sole leather. With these, that portion of the foot which needs the most precaution, viz., the crust or walls of the hoof where it meets the sole, will be preserved from contact with hard or rough surfaces; while the frog, generally too much protected, will reach the ground and become subjected to healthful action. For farm work, upon smooth soils free from stones or gravel, this kind of shoe will be useful during the summer season. A simple strip of raw-hide or sole leather, well filled with hot pine tar to make it hard and waterproof, will be sufficient for general use. A more durable shoe may be made of two or more thicknesses, fastened together by copper rivets as shown in the illustration.

LEATHER SHOE.

Cattle Sheds.

Shelter should always be provided for cattle or other live-stock, both from the summer heat and

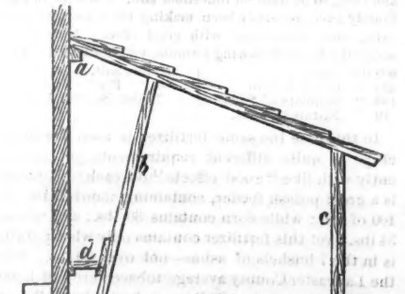


Fig. 1.—CHEAP CATTLE SHED.

the winter's cold. It is not necessary that the sheds should be costly, many a farmer who knows their need may wait too long for them unless they can be cheaply constructed and of cheap materials. It is now time to think about sheds for use in the coming winter, else when winter comes they will not be ready. The material may be such as will suit the purse of the owner, and the style the same of whatever they may be made. At figure 1 is a plan of a shed which can be built for about 50 cents a running foot, or $50 per 100 feet, which will accommodate 25 to 30 head of cattle. The extra quality of the manure made in a shed of this character in one season would repay its whole cost. This is built against the side or end of a barn, or a high board fence. A scantling, *a*, is spiked to the wall at a convenient hight. Poles, *b*, are set in the ground 2½ feet from the wall, and sloping backward, as shown. Scantlings or battened poles are spiked to the pieces, *a*, the tops of the poles, *b*, and to posts, *c*, to support the roof. The front can be enclosed wholly or in part with boards nailed horizontally. The feed trough, *d*, is raised from the ground, and can be reached through openings in the barn wall. If abundant litter is thrown in this shed, the cattle may be kept in it for a whole winter, in perfect cleanliness; and the manure being trodden hard, will remain moist and inoffensive. In a similar shed, 40 feet long, 14 head of cattle have been wintered and kept dry and comfortable; the manure when removed in the spring was two

Fig. 2.—A CATTLE SHED OF BETTER BUILD.

feet deep, and in the best condition for immediate use. The animals were not fastened, but if it is thought desirable to tie them, each post will make a stanchion for hitching to. Of course it will be

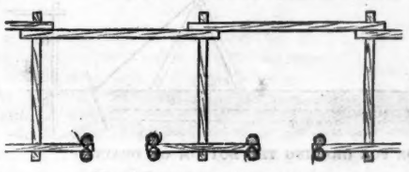


Fig. 3.—EASILY MADE PENS.

understood that such sheds are not recommended for occupancy by milch cows in very cold localities.

A better looking, but not more serviceable building may be made of timber and boards nailed and spiked together, without mortises or tenons, for about four times the cost of the shed above described. A section of the frame is shown at fig. 2. The sills, 6x6 (*a*), are halved together at the ends and pinned or spiked. The joints should be thoroughly painted with pine tar before putting them together. The boards are then nailed to the sills, fastening and bracing the corners until the plates, 2x6, (*b, b*), are nailed to the boards. A girt, 2x4, (*c*), is then fastened at such a hight as to be made to support a floor if necessary, or about 7 feet. The beams of the floor should be of 2x6. The building may be 10 or 12 feet high if 20 feet wide. The rafters are then fitted to the plates and strengthened with collar pieces of board (*d*). Posts, 4x4, may be put in at the corners, and a few studs of 2x4 be added at every 4 or 6 feet around the walls. A building so constructed will be found quite stiff; and with a shingle roof, and painted with Johns' Asbestos paint, it may be neat and shapely. If room is needed for storing hay or grain, the upper floor may be removed and the building be filled to the peak.

Or pens of rails, poles, slabs from saw-mills, or other rough timber, may be made as shown at figs. 3 and 4. These are built up after the manner of log

Fig. 4.—SIMILAR TO FIGURE 3.

houses, the ends of the poles at the entrances being secured by stakes driven down upon each side into the ground, and fastened by wires or withes, twisted around them. The pens may be covered with cornstalks, coarse hay, or straw, and a

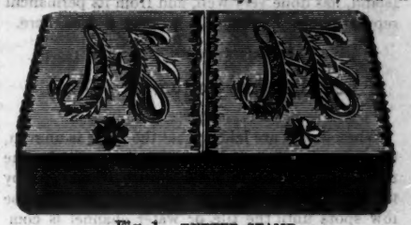


Fig. 1.—BUTTER STAMP.

quantity of the same used for protection on the exposed sides. As a protection in the field for sheep and pigs when about to produce their young, such pens will be found very useful; and in the West, where corn stalks and straw are a burden, such cheap sheds will be found an economical shelter.

Butter Stamps and Packages.

There is rivalry amongst fancy butter makers to excel, not only in quality, but also to offer their product in the most acceptable form, and in attractive as well as convenient packages. The favorite method of putting up butter for immediate sale, is that of pound cakes, ornamented with a stamp and marked in the center, so that each can be divided into half pounds for use on the table. For this, moulds and stamps are used. A convenient and shapely butter stamp is shown at fig. 1, bearing the maker's initials. Being square, the prints may be packed upon the shelves in any butter-carrier without loss of space, which is an advantage. A package for round prints, known as the Lancaster Butter-Carrier, is shown at fig. 3. This holds 48 round prints, each contained in a separate cup of tin. In warm weather the central cups may be left out and the space filled with ice. This method preserves the butter in good shape, and enables it to be handled by the retailer in the best manner. A useful package for distant shipment, is the white-oak pail, shown at fig. 2. It is made of several sizes, to hold 5, 10, 20, or more pounds. The smaller ones are convenient for the consumer and for the retailer; and the oak being free from objectionable scent or flavor, will preserve the fine qualities of the best butter from deterioration. They can be packed in barrels or boxes when put up for shipment.

Fig. 2.—BUTTER PAIL.

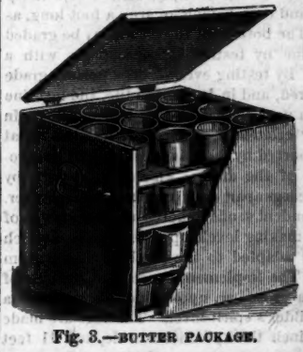


Fig. 3.—BUTTER PACKAGE.

Seed Wheats.—Now at planting time, it is important to choose a good variety of seed wheat. With every care in preparing the ground, all may be thrown away and lost by sowing a variety that is either not hardy or not prolific. Of two varieties sown side by side, and grown under the same treatment, on the writer's farm, one was hardly worth thrashing, while the other will yield at least 25 to 30 bushels per acre. The better of the two is the Clawson wheat. Of the fall wheats, we have also grown the Treadwell, Fultz, Lancaster Red, with the Clawson, which have proved hardy, almost

proof against fly and the midge, and they yield well, and make excellent flour. A newly imported variety, the "Challenger," grown this season upon Long Island, has done very well, and from its permanent reputation in England, is worthy a trial here.

Levelling the Bottom of a Drain.

When drains are laid so that the slope is uneven, they soon become useless. This is caused by the retention of water in the hollow portions, and by the deposition of sand or other sediment in these low spots until the tile or water channel is completely closed. In making a drain, the first thing is to cut the ditch. If this is perfectly done, laying the tile is a simple matter that can hardly go wrong. The chief consideration is to get an even slope without any depressions, which is a very difficult matter, and however well the surveyor's levelling and staking may have been, if the workman is incompetent, or not closely watched, there will almost certainly be hollows in the course of the drain. Where a stream of water is running in the ditch, it is not difficult to notice any deviation from a regular slope; but when the ditch is dry, it is far from easy, especially when the slope is only a few inches in a hundred feet. A guide made in the following manner, will serve to indicate any variance from a proper grade. It consists of a few "cross-legs" made of wooden bars, 2 inches wide, 1½ inch thick, and 5 feet long (fig. 1). They are fastened together with bolts, so that the legs can be spread or closed, and may be set astride the ditch. When the ditch has been roughly dug out, the level may be accurately fixed in two or more places, over each of which a pair of legs is set, and over these, a strong thin cord, such as a stout linen fishing line well oiled, is stretched and secured as shown. It is a matter of convenience how many of the legs are used; two will be sufficient in most cases, although a number of them may be used over an extended drain upon regularly sloping land, as a guide for the first excavation. When the line is set up, it may be prevented from sagging, by the use of a few intermediate supports as shown at *a*. These are square rods 1½ inch thick, furnished with sharp iron points, and each having an arm, a foot long, as indicated. The bottom of the ditch may be graded from this line by testing it occasionally with a plumb-bob. By testing every foot, a perfect grade may be secured, and in laying the tile, the test line may be again used for certainty. It is necessary in placing the "cross-legs," to have them set so that the line supported by them is parallel with the proposed grade of the drain. This may be done by spreading the legs apart or by drawing them together.

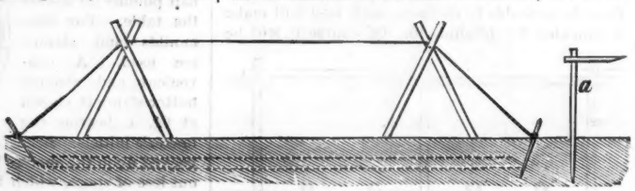


Fig. 1.—A GUIDE FOR GRADING THE BOTTOM OF DRAIN.

A correspondent sends a sketch and description of a method of making levels upon the surface, which may also be adapted to the levelling the bottom of a drain. The implement consists of a "pair of legs" with a cross-bar, upon which is mounted a common builder's spirit-level. The legs are made of strips 1 inch thick, 3 inches wide, and 11 feet long. The cross-bar is 9 feet long. The spread of the feet is exactly 16½ feet, or 1 rod. The level may be temporarily used to secure the correct hanging of the plumb-line, and the marking of the notch, shown at figs. 2 and 3, and may then be laid aside. When the instrument is correctly marked, a block of wood one inch thick may be placed underneath one foot, and a mark made where the plumb-line strikes the cross-bar, as shown at fig. 3. A scale may thus be noted upon the cross-bar, each mark showing a deviation of one inch in a rod, or 1 in 198, and the scale may run each way from the middle. It would be better to read thus, 4, 3, 2, 1, 0, 1, 2, 3, 4, and so on; the center 0 showing a level, and the others, 1, 2, 3, or 4 inches slope in 198 feet. In practice, the instrument is placed in the drain to be tested, and the mark beneath the plumb-line noted. Whatever this may be, the same inclination should be kept along the course of the drain, and a test made at every 6 or 8 feet if desired. The instrument may be used for laying out drains in the first instance, by placing it upon the ground with the right leg at the starting point, and moving the left one here or there until a proper slope is found, when a peg may be driven in the ground down to the surface, and the right leg moved on to it, when the left one may be used again to find the proper spot. By traversing the required direction until the termination of the drain is reached, and counting the pegs, the whole inclination will be ascertained, when the drain may be run in a direct line, from the first to the last peg, avoiding the meanderings. Another level which will serve to test the inclination, is shown at fig. 4. This is marked similarly to that shown at fig. 2, but is differently constructed. The L is made at right angles, and the amount of divergence is shown by the swinging of the plumb-rod. The bottom may be exactly 100 inches (8 ft. 4 in.), and every inch of slope can be marked upon the scale. The handle serves to slide the level along the bottom of drain.

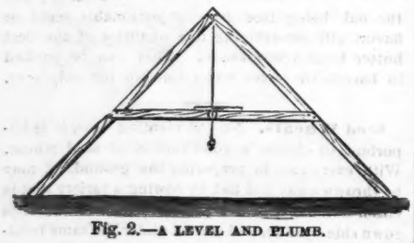


Fig. 2.—A LEVEL AND PLUMB.

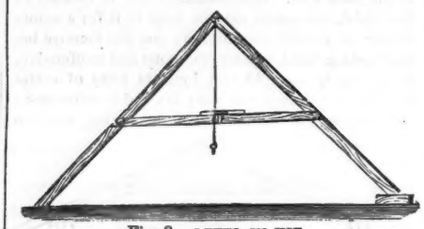


Fig. 3.—LEVEL IN USE.

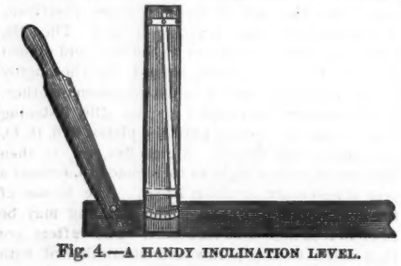


Fig. 4.—A HANDY INCLINATION LEVEL.

Sheltering Vehicles and Machines.

Notwithstanding the number of carts, and mowing-machines, and horse-rakes, and other tools that we see standing by the roadside or in the field, the year round, most farmers believe in the economy of housing all these things. They know that iron rusts, and that wood-work swells and shrinks with the changes of the atmosphere. They think it is only a question of time that the new carriage house or shed shall be built, where the scattered tools and vehicles will have a permanent home. This waiting to provide the needed shelter is the most expensive kind of saving. The elements are all the while at work, depreciating the value of the wood and iron that are exposed to the weather. A scythe and snathe hung in a tree through one season, is old, warped, and rusty. Stored in the tool-room it is little changed in look or value; no repairs are wanted, and it is ready for use as soon as the grass is ready. The new cart that is left by the roadside soon goes to pieces; even if painted, the paint soon wears off; the sun cracks paint and wood, the heat expands the cracks, the rain enters the openings, and decay commences, the joints become loose, the felloes and spokes shrink in the dry weather, and the tire must be set often to keep the vehicle in running order. Farmers often overestimate the expense of a tool or wagon house. If they have timber or building stone upon their farms, very little money need be laid out to put all running gear under cover. A roof and siding to keep out rain is the main thing. Flooring is not needed. The bare earth under all wooden wheels with tires, if dry, will answer instead of plank. Just enough moisture is absorbed from the earth to keep the wheel in good condition. The tire will not need setting so often. A shed set upon a bank wall makes a good shelter, and is within reach of most farmers.

The Best Fertilizer.

How to make a formula for a fertilizer for any particular crop or soil, which shall produce satisfactory results, and at the same time be most economical of material—wasting nothing, and using only so much as the special case requires—is a most difficult question for any one to answer, unless he be the best of agricultural chemists, and is thoroughly familiar from long experience with the land under treatment. Yet, just such information as this is what farmers in various sections are continuously writing to us for. The first part of the problem is comparatively easy—*i. e.*, to make a fertilizer which shall produce great results—but *what to leave out* is a difficult point to settle. Indeed we may say, that this is a point which never can be settled exactly, so great a difference is there between adjacent farms and fields, and parts of the same field even, or further still in the composition of the same spot of ground at different periods. But wonderful progress has been made in the solution of this problem—which involves so much of success or failure in agriculture—within the past few years, and for the most part has been recorded in the *American Agriculturist*. Here is a letter from "J. W. L.," of Lancaster County, Pa:

"Will you please give me what you consider the best formula for making a phosphate for wheat, also tobacco and corn, to be used on limestone soil. Farmers in this County have generally been making their own, and are using more every year with good effect. It is made according to the following formula, viz,, for one ton take

600 lbs. Bone.	50 lbs. Salt.
200 " Oil of Vitriol.	300 " Plaster.
150 " Sulphate of Soda.	7 bush. Sand or Ashes."
10 " Nitrate of Soda.	

In this case the same fertilizer is used for three crops of quite different requirements, yet apparently with like "good effects" on each. Tobacco is a great potash feeder, containing about 27 lbs. in 100 of ash; while corn contains 30 lbs., and wheat 34 lbs.; yet this fertilizer contains only what potash is in the 7 bushels of ashes—not over 20 lbs. But the Lancaster County average tobacco crop of 1,500 lbs. per acre requires 80 lbs.; and as only 400 lbs. of the fertilizer are applied per acre, it only gets 4 lbs., and not always that, since the ashes are considered of so little importance as to sometimes be replaced by *sand*. Yes, the sand is even named first. The same is true of wheat and corn as respects potash, though to a less extent. If this fertilizer produces satisfactory harvests year after year for each of these crops, it is quite evident that the soil where it gives such results, does not need potash, for the present at least. Yet almost any farm in New England, or elsewhere, on which the same sandy-loam soil prevails, would show a very different result, as potash thereon is one of the essentials. And we are inclined to doubt whether the same showing

would be made for many years in Lancaster County. As to the composition of the fertilizer, we see nothing essential except the bone and the oil of vitriol (sulphuric acid). Since the mineral portion of bone is composed almost entirely of lime compounds, when it and the acid are put together, chemical action takes place, which forms a large amount of sulphate of lime (plaster). Why, then, *add* more plaster? The plaster thus formed in the fertilizer would have a similar effect to the sulphate of soda, and could well take its place; and there is so little of the nitrate of soda as to be of no moment whatever, though 100 lbs. would doubtless have a materially beneficial effect. Even the acid (oil of vitriol) could well be dispensed with, provided the bone be reduced by composting with stable-manure for three to six months. Such a compost, kept heating by occasional wetting (best with liquid manure), and protected from loss of the ammonia by a light covering of earth, will fit the bone for use as well as by using the costly acid.

Thus it will be seen that there is great waste in such home-made fertilizers, even though they produce good results. We have pointed out one or two points of error; but we have not considered the nitrogen or phosphoric acid, either as a whole or in relation to the various crops; nor touched upon the amount of the fertilizer required in each case: the first will have further consideration; the second must be determined by individual experience from year to year on the farm.

Profitable Use For Some Waste Lands.

How will this do? All over the mountainous regions of New England, Eastern and Southern New York, Central and Western Pennsylvania and Virginia, Eastern Kentucky and Tennessee, and so on Southward, as well as in some of the far Western States and Territories, there are very many tracts of high land too stony for cultivation, or even for good pasturage. When the first wood is cut off, a second growth comes up, straggling, bushy, often scrubby. In 15 to 20 years a moderate crop of fire-wood is again cut, but there is little valuable timber.—While wandering over the large farm of a friend on the west side of the Hudson River, the other day, we came upon a sort of table-land field on a hill that had been cleared, and an attempt made to plow and cultivate it; but it was too stony, and the proprietor said he should give it up as not

Fig. 1.—SECTION OF HAY CARRIAGE TRACK.

worthy of attention. All around it were groves of cedar, chestnut, and other kinds. The chestnut trees appeared thrifty. We set to reasoning thus:

A man with pick and spade could dig up and prepare at least 20 places a day that would each furnish a good bed for a young chestnut tree. Putting these in regular squares, say about 12 feet apart, would give 300 trees to the acre. At $1 a day, this would cost $15 per acre; on many fields it would be done for much less. An abundance of young chestnut trees that will bear transplanting can be readily produced at trifling cost by planting the seed in a good plot of ground. Allow $5 for the 300 young trees, and we have them well started and growing on an acre, at a cost of $20.—One or two days annually, with a long-handled hatchet, or wide chisel, or bush-hook, would suffice to clip out starting under-brush, and trim off side branches from the trees to keep them growing upward, so as to furnish tall trunks for timber. No other expense would be required. The trees set in the small prepared plots will send out their roots among the stones, and grow vigorously, if the ground be not wet or springy. The annual fall of leaves will mulch and enrich the soil. In about 14 years there would be 300 fine trees, each worth at least 50 cts., or $150 per acre, for posts and rails, besides not a little fire-wood. The original outlay of $20 would be doubled by loss of interest. Allow $10 more for pruning, care, etc., and would there not be a *profit* of $100 per acre? Nothing is allowed for the value of the fruit or nuts that would be gathered. We said above that our thoughts run out in this channel, but we are not sure of the

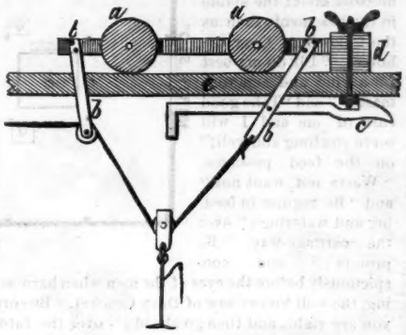


Fig. 2.—HAY CARRIAGE.

feasibility of the plan, and we invite criticisms, pro and con, and any suggestions. Would, or would not the above be better than to invest the $20 in bonds or mortgages? The land is practically worthless now; if it yields *any* pasturage, it would yield quite as much with the under-brush kept down, after the trees are too large to be injured by the animals roaming among them.

A Home-made Hay Carriage

A correspondent from Somerset Co. Pa., sends the following description of a hay carriage, which can easily be attached to a barn at any time, but more easily when the barn is building. The rail track is shown at fig. 1. It consists of four pieces of 4×4 timber; two uprights, *a*, and two horizontals, *b*, *b*. These are as long as may be made necessary by the pitch of the roof, and are framed or bolted to each pair of rafters. The space between the uprights, *a*, is 8 inches; that between the ends of the horizontals, *b*, *b*, is one inch. The rails which rest on the ends of the horizontal supports, *b*, *b*, run the entire length of the barn, and are 5×3½ inches, thus leaving a space of one inch between them. The rails are firmly secured by bolts, the heads being sunk even with the surface, so as to offer no obstruction to the wheels.

Fig. 3.

The carriage (fig. 2) is made of strap-iron bent as shown at figure 3. The wheels *a*, *a*, are of wood or iron, and flat on the tread; are 5 inches wide, and from 6 to 9 inches in diameter. The iron straps are 2 feet long, 2½ inches wide, and ¼ inch thick. The hanging pieces, (*b*, *b*, figs. 2, 3, and 4,) by which the hoisting rope is supported, are 13 inches long. They are bolted to the carriage as indicated; one is provided with a pulley at the end over which the rope passes, and one carries the catch *c*. The construction of these is shown in detail at fig. 4. At fig. 5 is a movable fastening, upon which the catch hooks itself as the carriage is drawn back to its place, either by a light rope, or a rope and weight. The top piece, *d*, (figs. 2 and 5), and the under piece, embrace the rails *e*, *e*, between them, and hold them firmly when the thumb-screws are tightened. This part of the catch is moved upon the rail as is found necessary for the hoisting of the hay. The carriage can be used to hoist hay, straw, or grain, either into, or out of the barn, or from one end of the barn to the other, or from either mow to the floor in the middle.

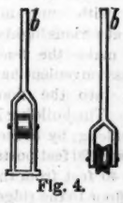


Fig. 4.

Cats, versus Rats and Mice.

We have never seen any estimate of the damage inflicted upon the farmer by rats and mice, that did justice to the subject. The damage is wide-spread, and outside of the realm of statistics, it would be hardly possible for any farmer to estimate, except approximately, his own personal loss every year from these vermin. He is made aware of the ruin wrought, on almost every part of his premises, and every day in the year. They are in the cellar reducing his winter stores of vegetables, or if walled out therefrom, by stone and cement, they find refuge in the barn, invading grain-bins and hay-mows. They make their homes in the field, under stacks, and shocks of grain. If there is anything tender and edible, they lie in wait for it. How they prize young ducks and chickens, every poultry-woman knows. What a charm there is in seed-corn, and indeed, in seeds of all kinds, for them, every one who saves seeds knows. Cement is good, if faithfully applied, but not one farmer in a hundred uses it; and those who do, find it impossible to keep cement between rats and their grain crops at all seasons of the year. They prey upon corn on the stalk and in the shock, and upon wheat in the stack. They frequent mangers, and pigs' troughs, and the hen-house. Traps are very good, and rats may be thinned out by these ingenious contrivances. But your neighbor does not use traps, and he is always raising rats and mice to stock your premises. The creatures will emigrate without any respect to the graves of the victims you are all the while burying out of sight. A clean house and barn to-day, may be haunted with lively vermin to-morrow. Poison is effectual and carries the war right into the enemies country. But then it takes a good deal of time to prepare it, and to seclude it from everything but rats and mice. It is not to be forgotten too, that they have a malicious way of crawling into their burroughs, wall in and ceiling, and reminding you of their presence in an ungenerous way. If the evil that men or rats do, would only die with them, we should have some consolation. But it will not. There are so many failures and infelicities about the proposed remedies, that we have come to think better of the old and time honored method of destroying rats and mice. The cat has her drawbacks, it must be admitted. She is noisy, and will sometimes fight the dog, or prevent birds from nesting about the house. But then, she does war upon rats and mice, and makes a business of destroying them. It is literally victuals and drink to catch these vermin, and she educates her offspring in the same habits. Other parents sometimes fail of transmitting goodness. But by birth and education, the cat is a rat-catcher. Every one of her brood walks in the way she should go. She is cheap. Her time is not worth much. She slays, and saves money while you sleep. Let us cultivate cats.

Fig. 5.

CONNECTICUT.

The Dodders as Weeds.—(*Cuscuta*).

Those little parasitic plants, the Dodders, are well known to those who notice the common things about them. In almost every swampy place their yellowish threads may be seen in late summer, hanging in tangled masses over other plants, upon the juices of which they live. In Europe, one Dodder injures the clover, and another the flax crop. In December, 1874, we figured a Chilian species that threatened serious damage to the Alfalfa fields of California; and in November, 1868, another, that had made its appearance in a nursery, and attacked the young apple trees. Recently, we had another instance of the appearance of a Dodder as a weed. A gentleman in New Jersey, who is experimenting with the choicer basket willows, brought rods from his plantation, 5 or 6 ft. high, which were festooned to the top with the thread-like stems of the parasite. As flowers had not yet appeared, we

could not determine whether it was one of the half dozen or more native species of *Cuscuta*, or a European one, imported with the willows. At all events it is in such abundance as to threaten to seriously injure the value of the willows, and if not exterminated, their culture in that locality will be impossible. The course to be pursued will depend upon the future development of the weed. If that flowers and perfects its seeds so late that the willows may be cut without injury to the stools, then it may be well to wait a while, but if there is danger of stocking the soil with seed before it will answer to cut, then hand-picking of the clusters must be resorted to. As Dodders always start from a seed that germinates in the ground, and draw their nourishment from the soil until the stems have thoroughly attached themselves to the bark, it will not be difficult, now that the nature of the pest is known, to keep it down in the future.

A Large and Complete Barn.

The plans and perspective view presented herewith, represent the fine stable on Houghton Farm, the property of Mr. Lawson Valentine, Mountainville, Orange Co., N. Y. It is located in a central position on the farm, about 25 rods from the house, on a side hill, and supplied with water brought from springs. The barn is handsomely proportioned, and with its slated roof and red-painted walls, with black trimmings, presents a fine appearance. For the keeping of the owner's large stud of carriage, saddle, farm, and breeding-horses, it is admirably adapted, and worthy of imitation by any well-to-do farmer desiring a handsome and useful barn; and in its general plan may be followed on a smaller scale by any one having numerous horses and fine cattle to provide stabling and shelter for.

Fig. 1.—BARN AT HOUGHTON FARM, MOUNTAINVILLE, N. Y.

The farm buildings are numbered, this being No. 1, shown by a conspicuous figure in white over the main door. The interior exposed wood-work is varnished, making a neat and substantial finish. Systematic work is enforced in the care of the animals, and is encouraged by appropriate mottoes about the stable in the basement, such as the following: Over the horses, "I'll do my best for a kind and generous master" and "Take good care of me and I will serve you long and well;" on the feed passages, "Waste not, want not," and "Be regular in feeding and watering;" over the carriage-way, "Be prompt;" and conspicuously before the eyes of the men when harnessing, the well-known saw of Davy Crocket, "Be sure you are right, and then go ahead;" over the farm harnesses, "A stitch in time saves nine;" over the tools, "A place for everything, and everything in its place." There is also the precaution, "Look well to ventilation;" and oft repeated, "No smoking." A clock on the wall marks the moments of wasted or utilized time. Iron-framed lanterns, with reflectors, are made fast to the wall at one end of each passage. Opening into the basement, and extending nearly to the roof are four ventilating flues, each 4 ft. square. Their outer edge is on a line with the drive-way, and the inner side has openings fitted with movable slides, at various hights, which make the flues serve as convenient hay shoots into the floor below. The building is 110 feet long, by 55 feet wide, with 20 feet posts, and is 40 feet from the main floor to the ridge. It rests on a stone basement ten feet high in the clear; this basement provides comfortable and convenient stabling for the owner's fine stud. The division is shown at figure 2; *a*, *a*, are the horse stalls; *b*, the harness room, 4 x 25 ft.; *c*, stairs; *d*, box-stalls, 10½ x 14½ ft.; *e*, *e*, cow-stanchions; *f*, ox-stanchions; *g*, *g*, gates for separating the cattle department from the horses. Another barn serves for stabling a portion of the cattle. Figure 3, shows a plan of the main floor; *a*, is the tool room, on the wall of which are

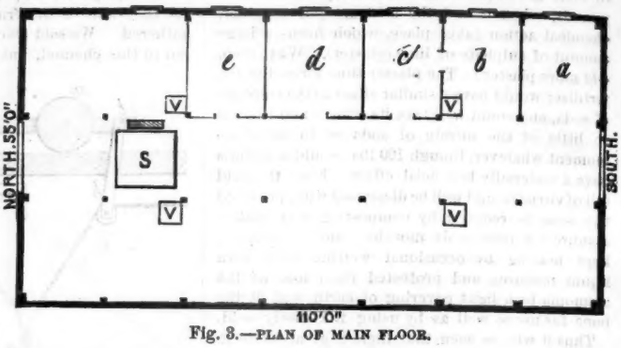


Fig. 3.—PLAN OF MAIN FLOOR.

the words, "Return every tool to this room;" *b*, contains a horse-power for driving a feed-cutter, thresher, etc.; *c*, is used as a stowage-room for cut feed, etc.; *d*, is the grain room, provided with bins and convenient shoots; *e*, is a room for the trainer, who there sleeps just over the animals he loves and cares for so well; the room also contains closets for the nicer harnesses. An opening in the ventilator, and a wakeful ear, enables the trainer to hear every sound from below. The letters *v*, *v*, *v*, *v*, indicate the ventilators; *s*, shows the large platform scale, on which every load of hay or grain is weighed as it enters the barn. The floor of the basement is made of brick, laid on edge in mortar, underlaid by concrete. Figure 4 represents one of the horse-stalls. The upper portion consists of iron rods extending from the top of the sides to a railing two feet above, and from the manger to the railing, as illustrated. The stall is 9×4½ ft.; and the manger is 1 ft. 9 in. from front to back. An iron feed trough for grain occupies one end of the manger, indicated by the dotted line at *G*; the remainder is taken up by the hay-box, *H*, the bottom of which is shown by the dotted line; a door in front allows for cleaning out the feed box, and a closet for storage. The box-stalls are also provided with the iron rods for a top-finish, so that a person can easily see into them without entering. This barn has so many conveniences that we have not space in one article to describe them. In its general completeness,—fine proportions, conveniences, and compact arrangement, it has few equals.

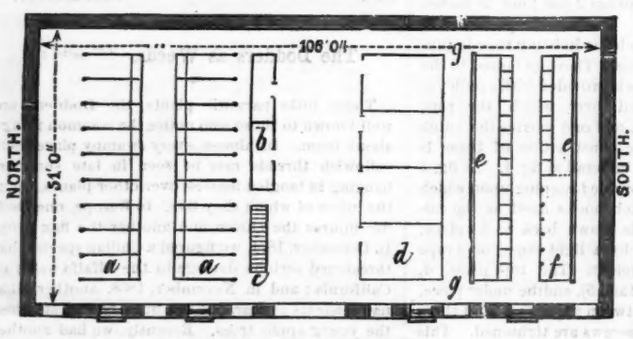


Fig. 2.—PLAN OF BASEMENT.

Fruit Growing in California.—Until recently, the California fruit growers enjoyed an enviable immunity from the various insects, blights, and other obstacles with which Eastern growers have to contend. The Californians have shown great enterprise in introducing fruits from all parts of the world, and with them have come the enemy,

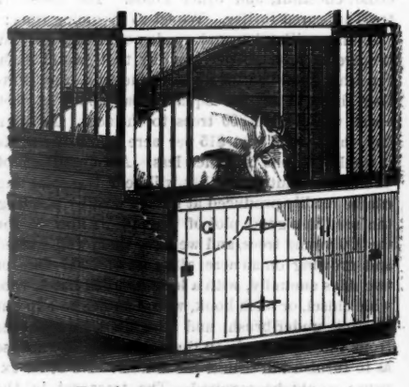


Fig. 4.—VIEW OF HORSE STALL.

and for the last year or two, the California Horticultural and Agricultural Journals are almost as much devoted to the extermination of insects and fungi, as are similar papers in the older States.

The Starry Magnolia.—(*Magnolia stellata.*)

Many months ago, Messrs. Robert B. Parsons & Co., sent us the flowers, and later the foliage, of two new Japanese Magnolias, to which had been given the names respectively of Hall's and Thurber's Magnolia, (*M. Halleana*, and *M. Thurberi*), the one in honor of Doct. Hall, a long resident of Japan, and who has been instrumental in introducing a number of Japanese plants, and the other in honor of one of the Editors of the *American Agriculturist*. These Magnolias were first introduced into cultivation by Messrs. Parsons & Co., Flushing, L. I., in whose nursery they flowered several years ago, and where they received the names above mentioned. When the old firm was made into two, the stock was (presumably) divided between the new firms of Saml. B. Parsons & Sons and R. B. Parsons & Co., as we notice that both firms offer them in their catalogues. Aside from their intrinsic merits, these trees have an especial interest as being American introductions. We give an engraving from a drawing, made last spring from the original stock of the one called Hall's Magnolia. The flowers were received at one time, and the leaves at another, and by some misunderstanding, the artist has put the flower upon a leafy branch. This conveys a wrong impression. Like *M. conspicua*, *M. Soulangeana*, and other Chinese Magnolias, this produces its flowers in advance of the leaves, and to show it correctly, the flowers and leaves should be presented on different branches. The plant has a dwarf habit, and will probably not reach a hight of over 6 or 8 feet. It produces a great abundance of bloom, which appears earlier than that of the two well known kinds just named. The pure white flowers are produced in such profusion as to quite cover the bush, but are individually smaller than those of the related species, averaging from 3 to 4 inches in diameter. They have an exceedingly pleasing fragrance. The other, offered as *M. Thurberi*, mainly differs from this in the number and size of its petals. For small places, plants of moderate hight and abundant bloom, are most desirable, and such really valuable additions as these Magnolias to our collections of early flowering shrubs, are most welcome, and we thank Mr. Robert Parsons for making us acquainted with them.

We have heretofore expressed our regret that botanical names should be given to nursery plants, and the case of this Magnolia calls for a renewal of this protest, as it affords an example of the confusion it leads to. No conscientious botanist gives a new name to a plant unless he is well convinced that the plant itself is new. Still, with all possible care, our books are loaded with synonyms. We would not imply that the nurserymen would willingly give a name to a plant already described, but, with a few rare exceptions, nurserymen have not the books, herbaria, and other facilities for determining whether the plant new to him is really new to science. This Magnolia seemed to be new, and it was named *M. Halleana*, was sent abroad under that name, and only in June last was figured as such in "The Garden," (London.) It now appears that it is really an old plant, it having been figured 25 or more years ago by Siebold & Zuccarini as *Buergeria stellata*, as they considered it distinct from *Magnolia*. Sir Joseph Hooker, in a recent number of the "Botanical Magazine," puts the matter right by figuring it under the proper name, *Magnolia stellata*, and before this article was put in type, there came to hand the "Revue Horticole," in which the plant is figured by Carrière under the same name. *M. Halleana* must therefore be dropped.

A California Succulent.

(*Cotyledon edule.*)

Within a few years, the plants known collectively as "succulents" have been much in fashion. Their compact and low growth, their fleshy leaves, usually arranged in rosettes, and the considerable variety in their color, which is generally of soft and pleasant tints of green, especially adapt them for working out figures in mosaic planting, and allow the production of effects in gardening that are possible with no other class of plants. Under the general term "succulents," are included plants with no immediate botanical relationships, the large family *Compositæ* furnishing several, though the great majority belong to the Stone-crop Family (*Crassulaceæ*), of which the old and well-known "House-leek" (*Sempervivum tectorum*) and the common "Live-forever" (*Sedum Telephium*), now in some places only too common as a weed, are the most familiar representatives. The majority of the "succulents" being tender, mosaic bedding can only be undertaken by those who have sufficient greenhouse room for the storing of the plants during winter, and examples of this style of gardening are limited to the grounds of those with proper means and facilities. The plants most largely used are the different species and varieties of what are given in the catalogues as *Echeveria*, and comprises plants from almost every part of the world, including several, and those among the most striking, from our Pacific Coast. But botanists (Hooker & Bentham abroad, and Gray, Watson, and others at home,) have lately found that there is no good reason for the existence of the genus *Echeveria*, as distinct from the older *Cotyledon* of Linnæus. So the plants named in

EDIBLE HOUSE-LEEK.—(*Cotyledon edule.*)

THE STARRY MAGNOLIA.—(*Magnolia stellata.*)

honor of one *Echeveri*, who drew Mexican flowers so handsomely, must go back to *Cotyledon*, so named from the Greek word for a cavity or cup, the foliage forming a sort of leafy cup. Long before mosaic planting in our gardens with Cotyledons (or Echeverias), and similar things, was thought of, the writer had a view of a most complete and extensive example of mosaic work, which was perfect in its way, it being nature's own planning. In 1852, we made an excursion to the Coronados Islands, a rocky group rising abruptly out of the Pacific, some 30 miles directly west of the beautiful harbor of San Diego. It was a difficult matter to make a landing, and an equally difficult one to scramble to the top of the rocky cliffs. At the top were a few acres of rock, seamed and creviced in every direction, and wherever there was a seam that would give the plants a foothold, there grew, as thickly as they could stand, what we may call the "Powdered House-leek," *Cotyledon pulverulentum*, now one of the most esteemed and most effective of the succulents employed in mosaic bedding. The species is called *pulverulentum*, because the leaves, which form a beautiful rosette, appear as if sprinkled with some white powder; there were besides this, less numbers of one or two other species. The formal shape of these plants, each being an almost exact duplicate of its neighbor, their regular disposal in the long lines of crevices, and the fact that they made up nearly the sole vegetation of the surface of these islands, formed a scene most weird and striking. The surroundings contributed to the strangeness of the picture. It was framed in by an immensity of ocean, the dash of which against the rocks made a solemn diapason, relieved only by the shrill cries of the sea-lions disturbed by our arrival, and the screams of multitudes of sea-fowls unaccustomed to the presence of man. As we looked upon this example of nature's mosaic planting, we little thought that we should thereafter see the same plants contributing to the attractions of the gardens of Mr. Hunnewell at Wellesley, or of Professor Sargent of Brookline, both in far off Massachusetts. With this personal digression we come back to our succulents, the Cotyledons. Among the species on the Pacific Coast, one appears to have escaped the attention of cultivators, *Cotyledon edule*, which may be called the "Edible House-leek." Since seeing it wild on the Pacific Coast, we first met with it in cultivation in a small but choice collection exhibited at the Centennial by Miller & Sievers, of San Francisco, Cal. Since then we have received it from a California correspondent, and this summer have had it in flower. The plant forms a tuft, a foot or so across, made up of numerous short leafy branches, one of which is shown in the engraving. The leaves, it will be seen, are cylindrical, and are from three to five inches long; they have a peculiar glaucous hue—a very pale green—and would be quite as useful in producing planting effects as the *Kleinia*, now so much employed. The flower stems are a foot or more high, and produce a panicle of whitish flowers, like those shown in the engraving reduced in size. This is very unlike in its general aspect to any other species of the genus, and its horticultural value as a bedding plant has not yet been fully tested. At all events, we find it an interesting plant for a cool green-house, and value it none the less because it is a native. It was described by Nuttall, who first made it known, as *Sedum edule*; the specific name was given because the Indians of the Coast used the young leaves as food. As these Indians eat everything from acorns to grasshoppers, we can not, upon their evidence that it is edible, add this to our list of garden vegetables.

Keeping Celery in Winter.

BY PETER HENDERSON.

[Last winter was so mild over a large portion of the country that great difficulty was found in keeping celery, and the losses were often heavy. Though written last January, this article is of more use now, when growers of celery are thinking as to the methods of storing their crops. One would suppose that so simple a rule as "govern the amount of covering by the temperature," would be observed by every one. But experience last winter showed that it was not, and it seems to be necessary to repeat the simplest directions year after year.—ED.]

A correspondent from Harrisburg, Pa., writes me under date of December 24th, as follows: "I have followed your instructions, given in "Gardening for Profit," of how to preserve celery in winter, for the past four years, and never failed until this season. Can you tell me why it is that my celery is rotting? Please reply in the *American Agriculturist*, as the answer may then benefit others as well."—Yes; the reason is easily explained. In almost every section of the country the season has been unusually mild—warm, in fact—consequently if you covered up your celery in the trenches, at the usual time of covering, nothing could prevent it beginning to first make roots prematurely, then to blanch or become white, and eventually to rot. In this vicinity (Jersey City Heights) we have scores of old celery growers, some of them growing half a million roots annually, and quite a number of them blundered just as the Harrisburg man did. The consequence was that the New York market last year was flooded with celery from the middle of December to the middle of January, so that instead of selling at the usual and paying price of 3c. per root, it has not averaged 1c. per root for all sold between these dates, to say nothing of probably one-third of it having rotted entirely. Now there was no occasion whatever for this loss, for there was no necessity to place any covering whatever on celery in trenches in this district, until the 28th day of December.

We grew some 10,000 roots ourselves from which to raise seed, but allowed it to remain uncovered until that date, and it is now nearly as green as when it was put away. By taking the precaution to have the covering placed along side of the trenches in heaps, ready to throw on on the approach of a cold snap, all danger of being caught by frost can be avoided, for a cold snap never comes so suddenly but that there is time enough to cover up before harm is done. In this matter, as in many others in gardening operations, the most successful cultivator is the one who does not follow blindly any given directions, but who will exercise his common sense when the exigencies of climate or any thing else require him to deviate from the beaten track of the usual practice.

Winter Bouquets, Grasses, etc.

As usual, at this season, we have inquiries as to the preparation of grasses, flowers, etc., to use for winter decorations. In 1874, we published a series of articles on this subject in which were given the results of our own experience, with such information as could be gathered from trustworthy sources. Those who have the volume for that year will find in the several numbers for August, September, October, and December, an article in which these matters are treated in full. It is not practicable for us to go over the whole ground again, in the same detail, but for the benefit of new readers, we give the principal points, referring those who wish for further particulars, to the articles in 1874. In Europe, the preservation of flowers is a regular business carried on in large establishments and employing many hands. Great numbers of these flowers are imported by our dealers, both made up in wreaths, bouquets, baskets, etc., and in bunches or clusters all of one kind. Most of the made-up affairs are not of a kind that appeal to our taste, the object being, apparently, to crowd the greatest possible variety of the most positive colors—even to black (!) in each design. The effect, as a general thing, is artificial and tawdry.

As to Grasses.

These are largely imported, and of late years some dealers have offered many of those collected in various parts of this country. These for the most part are dyed of various brilliant colors, and look to our taste, so thoroughly unnatural, that we are repelled rather than attracted by them. The pleasing effect of grasses is in form, rather than in color, and when we see specimens which are naturally of a soft green or straw color, dyed with the most intense crimson or blue, or of a green, the like of which no grass ever presented, the eye is arrested by the "stunning" color, and takes no note of the beauty of form. Others load their grasses with crystals of alum; and worse yet, others are given a metallic appearance by the application of bronze powders. We can describe how these things are done, but we can not find beauty in them.

The Time for Collecting Grasses.

Each month there will be some grasses in season, and though many of the earlier ones have gone by, there will be found, during this month and next, a sufficient variety, especially of the larger kinds. As some of the most pleasing kinds are of no agricultural value, they are not generally known by common names, and to give their botanical names would be of no use except to botanists, who do not need them. We therefore simply say, that by road-sides, in meadows, and especially in moist and swampy land, grasses are to be sought for. Not only the more showy kinds, but those which have delicate, fine panicles or flower clusters should be collected. Secure long stems, and cut away the leaves. In most grasses the upper joint that bears the flower cluster will pull out readily from the sheathing leaf; this will often leave the stem too short to make up conveniently, and it is better to take several joints of the stem and cut away the leaves. If one can choose the time for collecting, the grasses should be watched as they develop, and taken when in flower, which may be known by the protrusion of the *anthers* or the feathery *stigmas*. Some grasses if gathered much later than this, will drop portions of their flowers, or shed their seeds in an unpleasant manner. Still, if one is but temporarily at a locality, a desirable grass should be taken in the condition it is found at the time.

Drying the Grasses.

Those in which the panicle is graceful and drooping, should be dried so as to preserve the natural form. If such are tied in bunches and hung up carelessly, they will be disappointing when dry. A handy method is to have a broad and not very deep box of sand, and stick the stems in this. Those kinds in which the flowers are in a close and spike-like cluster, may be tied in convenient bunches and hung up, heads down; a little practice will teach the proper treatment if it be remembered that the form in which the grass is dried can not be afterwards changed. Any airy place will answer for drying, such as an unoccupied room, or an old-fashioned garret. When the stems are quite dry, the flower cluster will be so; and if the drying place is not quite free from dust, they should be put away from dust and from flies, which are very fond of collecting upon them.

Besides the True Grasses

there are various members of the Sedge Family that are worth collecting, especially the Cotton-grasses (*Eriophorum*), which show their white and brownish plumes in the boggy meadows. Indeed, whatever plants by grace or beauty of form commend themselves to the collector, should be gathered, without reference to botanical relationships.

Preserving Showy Flowers.

While grasses are as much flowers as roses and camellias, they are not popularly so regarded, and in the trade, "preserved flowers *and* grasses" are offered. We compromise the matter by calling the others "showy" flowers, of which a large number are prepared abroad. The class of annuals known as "Everlastings," are cultivated by many with a view to the use of their flowers in winter decorations. The majority of these require only to be picked as they just come into bloom, carefully dried and kept from the light and dust until wanted. A large number of the imported flowers are preserved by means of sulphur fumes, the process being precisely that used in bleaching straw hats. A box or barrel is provided, which, if not tight, may be made so by pasting paper over the joints; this should have a small opening near the bottom to admit air, which can be closed when needed; a few inch and a half holes to be stopped

with plugs will answer. An arrangement should be made to support crosswise sticks at the top; a tight fitting cover and an old iron pan, or flower-pot with the hole plugged, to hold live coals, complete the outfit. The flowers are tied in small clusters in such a manner that the fumes can reach all parts, and hung upon the cross-sticks, live coals being put in the pot or pan, a few lumps of sulphur are thrown upon them and the cover placed on; if the cover does not fit closely, put folds of wetted cloth under it and a heavy weight on top. When the box or barrel is well filled with fumes, close the lower air hole and leave all untouched for 24 hours. At the end of this time, remove the flowers and hang them in an airy room to dry. When quite dry they may be laid away in boxes. All flowers do not succeed equally well, and there is room for experiment. Among those we found most satisfactory were, China Asters, Fuchsia buds, Larkspurs—the dark colored kinds, Red flowered Spiræas, Goldenrods, Roses—the red well filled and not over-blown ones answering best. As a general thing, the flowers are better if taken just as they are opening; some, such as the Fuchsias, even in the bud, to be opened afterwards. Some flowers after sulphuring will be quite bleached, others will have the color hightened; but the color in most can be restored, as we may show in speaking of making them up.

Village Improvement.

Some Important Suggestions to Beginners.

Mr. Canning, the author of the article on this subject in the August *American Agriculturist*, and Secretary of the Laurel Hill Association, makes the following additional suggestions for the guidance of those who are about to combine for the purpose of Village Improvement—suggestions which his experience has found to be of primary importance:

1. Have available funds at command before striking a blow—funds sufficient to accomplish something noticeable before the community.

2. In order to preclude the inevitable consequences of a mere spirit of ardor, the decline of interest as it becomes an old story, and to secure permanence to your organization, arrange for a subscription of a fixed sum for three years, at least—longer, if possible. The extent of your operations can then be intelligently forecast and accomplished.

3. By all means have the *ladies* of the place engaged in the plan at the outset, and give them full representation upon the Executive Committee.

4. Don't undertake too much at the start. Operations were better confined to some greatly needed betterment, and success there, will, as in case of a partially constructed rail-road, prompt to continuance in the same line.

5. Hold the meetings of the Executive Committee, regularly, as often as monthly, and from house to house, during the working campaign. The important element of *sociability* will thus be incorporated, and tend materially to activity and success.

6. Let each particular department of work be placed in the hands of a sub-committee, with an efficient chair-man or woman, who shall, at each meeting, report its proceedings since the last.

7. Have all labor accounts examined by a competent officer, and all drafts upon the Treasury countersigned by the president or other authority.

8. For obvious reasons, have your Association chartered under State law.

The Red Cedar from Seed.—The seeds of Red Cedar rarely germinate until they have lain in the ground for a year. Instead of sowing such seeds and keeping a large surface clear of weeds for one season, nurserymen resort to what is called "stratification." The seeds are made into a heap, with alternate layers of earth, and the whole covered with several inches of soil; or the seeds may be mixed with earth in a box with holes in the bottom, which is to be plunged in the soil up to its edges. In either case the seeds will be subjected to the same alternations of temperature and moisture that they would experience if sown. The next spring, the seeds, if large, may be separated from the earth by a sieve, or if small, earth and seeds together may be sown. Like most other seedling evergreens, the Red Cedar needs shading while young.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Common Weeds Made Ornamental.

Last fall we saw in a New York seed-store among dried and colored grasses, and other materials for winter bouquets, a box of curious balls of down, each about two inches in diameter. The dealer did not know what they were, and as they were too delicate to allow of thorough examination, the only clue to their real nature was the bit of dried stem attached; and from this we guessed they were in some manner prepared from thistles. Walking with a lady in the country this summer, we jocularly proposed to add a thistle to the flowers she was gathering. "But do you know," said she, "what a pretty ornament can be made from the thistle?"—Then the mystery of the puzzling balls was solved. The large common Thistle is best for the purpose, and the manner of treating it may be shown by a rough drawing. The thistle deprived of its armed leaves as in figure 1, has a green prickly cup, *a*, and the showy or colored portion, *b*, which really consists of a multitude of separate little flowers, or florets, each complete in itself; these are attached to the bottom of the green cup, and are held together very closely by its upper edge. The bottom of this cup on which all these flowers stand, the botanists call a *receptacle*, and in the thistle it not only receives all these little flowers, but mingled among them a vast number of pure white delicate hairs, which are too soft to deserve the botanists name of "bristles." It is these hairs or bristles that make the ornament in question. To get at these, first cut away the leafy cup a little below the middle, about at the point, *a*. This will require some care, and a sharp knife or small scissors. It will be found that this cup, or "involucre," is not a solid piece, but is composed of numerous leafy scales, closely overlapping one another, and most of these scales are each tipped with a sharp prickle, as careless handling will soon demonstrate. All the green scales of the upper half of the cup being carefully removed, and some of the innermost are very delicate, then commence to pull out the purple florets a few at a time. As each of these has very fine hairs attached to it, do not think that the wrong material is being removed; if the florets are taken by the tips and pulled gently they will come out all right. Slow progress will be made at first, as the number of these little flowers is something astonishing. When the last floret is pulled out, the thistle will appear as in figure 2, with the remains of the cup, *a*, and a dense brush, or short plume of the white silky hairs of the receptacle. But this is by no means a ball of down. For that, we must trust to nature, for art has done all it can towards it. Hang the thistle head prepared, as in figure 2, in the sun, and the rest will do itself. These thistle balls may be kept suspended or put away in such a manner that they will not lose their shape, until wanted for winter bouquets or other decoration. We perhaps should not have given so much space to describing this, did it not at the same time give an instructive lesson in the structure of the thistle head, and through that a general idea of the arrangement of the flower heads in the great Composite Family of plants to which the Thistle belongs, in which the same plan or idea is worked out in their structure in wonderful variety.

Fig. 1.—THISTLE HEAD.

Fig. 2.—PREPARED THISTLE HEAD.

The Common Ox-eye Daisy, or White Weed, that pest of the farmer, who ever supposed that anything interesting or amusing could come of that? The lady referred to (an artist in many ways), as another lady saw the possibilities of a beautiful head in a lump of butter, saw in this commonest of weeds a possible head, which is here represented in figure 3, that its beauty may be manifest. In the Ox-eye Daisy we have another composite, its green-cup, small and flat, and two kinds of florets, the yellow disk and the white ray flowers. Removing some of the ray florets altogether, clipping the others to form the cap border, or *halo*, leaving two in proper positions for the strings; it only needs the features to be put in with pen and ink, to show how art can improve upon nature. With a bit of green this makes a button-hole bouquet quite unlike any in Miss Hassard's work on floral decorations, and the prepared flower *heads*, may be preserved for use in winter at fairs and otherwise.

Fig. 3.—FOR THE BUTTON-HOLE.

Home Topics.

BY FAITH ROCHESTER.

Our Children and the Wicked World.

A little boy of five years is shut away from the wicked world by the loving care of parents and friends, in order that he may grow up free from the faults and vices that infest society—a model of all the virtues. It is proposed that he shall receive his education entirely by private instruction, until he goes away to college. No playmates are allowed him except such as are approved by his parents—"good" children, of course. I do not know exactly how this plan will work, but I feel sorry for the child, and sorry for his parents. I am afraid they believe in the "white paper" theory—that each babe is like a sheet of pure white paper upon which the parents may write just what they please, so that his character at maturity may give the exact impress of their efforts to train him. Now, I have never had any of this "white paper" to deal with. Neither have I ever seen any. I have seen children who were certainly negative enough to rank as blank paper. It might seem that you could do almost anything with them, for you could easily "twist them around your finger," so to speak; but you could never make anything really good or great of such children. It is my belief that, instead of coming into the world mere blanks or sponges, these children are all heirs of Human Nature, with its untold capacities for both good and evil. I have never seen two alike, even in the same family. The natural dispositions are various, and different temptations affect them variously. It is, indeed, a wicked world into which they have come; but it is the world in which they must live and do their work as men and women. It is a very important part of their education that they should learn the ways of the world—not that they may practice all its arts, but that they may have some idea of what

they have to deal with, and be prepared to judge wisely in practical affairs. William's father would not let him go to the menagerie for $100. Allen's father lets Allen go to every one that comes along. Indeed he quits work and goes himself every time. Neither father seems to know how to make the best use of that institution called "the menagerie." I suppose every boy who sees the gorgeous pictures on the walls about town, and sees and hears the triumphant procession of the incoming show, has a strong desire to go inside the big tent, and see the *wonderful* performances there. Why shouldn't he go? I suppose such shows have some objectionable features, but not so many or so striking, I am told, as they had ten or twenty years ago. There are certainly some educational features, not easily obtained in all parts of the country, as there is always an exhibit, more or less complete, of strange and foreign animals. I can imagine a wise father sympathizing with his children's pleasure over the glowing pictures, encouraging their curiosity about the animals by bits of zoological information, and explaining how horses are trained, and what use or what foolishness there may be in the skill of the circus rider and his horse. I can imagine him promising the little ones that he will take them to a menagerie when they are old enough, and explaining to them how wearisome and comparatively unprofitable it would be for them to go before they are old enough to see the show without undue fatigue, or to remember the different animals distinctly after seeing them. The children of such a father wait patiently for their time to come, as they see their father quietly going about his business in spite of the excitement, and in the meantime they have more rational amusements.

How to Gain Strength.

I am deeply interested in the efforts of some of my acquaintances to gain strength, and become healthy women—all the more interested because I have lately had to make some particular effort in that direction myself, being unusually wearied by a hard winter's work. How we shall all come out I can not say yet, but I am firm in the belief that my way is the best way. They all have doctors, and I have none. I confess I wanted one very much indeed to give me good advice, but I couldn't afford to put myself under a doctor's care; and I knew very well, too, what a good doctor ought to say to me, and I couldn't afford to follow *his* entire prescription, which would be largely of rest and freedom from care. One of my friends pays her doctor by the month for treating her. *He has never seen her*, but she has told him by letter her symptoms, and he sends her medicines, and gives her advice by letter. The disease which he tells her that she has is supposed to be the result of improper medicine in the first place, but the dear woman takes the medicines of the new, strange doctor, in undoubting confidence, and thinks she could not live without them. There is too much of this "blind leading the blind." My sick friends who are troubled with so much general weakness and "all-gone"-ness, are obliged to add to their tea and coffee stimulants, beer and wine, one or both, as invigorators; and yet they don't get strong. I seemed to be breaking down, too—have been walking along close on the brink of it, with what caution I could, for a long time past. I was afraid any common sort of doctor would want to go to toning me up with medicine, and I never would take his stuff, for nothing was the matter with any part of me except tired-outness. A doctor of good sense ought to tell me to rest, and I have gone into that business as well as I am able. As little hard work and care as possible, all the quiet out-door life I can get, plain, nourishing food, with a good proportion of ripe fruit—that is my own prescription, and with the help of a good, kind girl, and the kind consideration of friends, I expect to pull through. No doubt some things are more strengthening than others when put into the human stomach as food or as medicine, but I have no faith in anything which professes and really *appears* to give strength without imparting any real nourishment to the system, which simply makes a person feel strong as a result of taking it, with a reaction of weakness after the effect of the stimulant is spent, until the dose is repeated and gradually increased as the system grows accustomed to the artificial stimulation. No doubt medicine may act as a corrective of a bad state of the system, impure blood, or a clogged liver. But you can get your blood purified, and your liver unclogged, without resorting to medicine, if you choose, simply by ceasing to do evil, and learning to do well physically. Make your blood of wholesome, nourishing, well-prepared food—the most healthful meats, the best of grains, the freshest vegetables; and for drink depend as much as possible upon juicy, ripe, unspoiled fruit, with pure water when needed. Purify the blood so made by full breaths of clean, fresh air, taken into the lungs where the blood is constantly passing for such purification. Keep the blood in healthy activity of circulation by judicious exercise, both in the way of useful work and in jolly games, and give yourself plenty of sleep in the purest air you can obtain. Living in this way, you can afford to "throw physic to the dogs," and you will find it the cheapest way in the end, as all good doctors will tell you.

Cleansing Laces.

Just what kind and degree of culture is necessary to make one scorn the use of any lace except that which is known as "real," I can not exactly say, nor have I any wish to reach that high degree of social culture. The finest hand-made lace is a rare product of human skill and patience, but I have read that the very rarest and richest in fineness and delicacy, and fullness of design, is made in damp unwholesome cellars, by women who wear out their lives in the sickening business. It can not be made in dry, fresh air, moisture being a necessary factor in its production. Slowly, painfully, the beautiful pattern is wrought, stitch by stitch, of the finest material, and of the bodies and souls of our sister women. You and I can do without it, and let fewer life drops fall in consequence. Indeed we must do without it, most of us, it is so exceedingly costly, and I hope we neither envy those who are able to wear it, nor feel like crying "sour grapes" about it.

But real Valenciennes and thread lace sometimes come within the purse range of people who can afford to read the papers. It is poor economy and poor taste to wash and iron these like common rags. A much better method seems coming into common use, and nearly all laces good enough to wear at all, should be washed in this way. This includes lace and tatting collars, pieces of footing, and also the better kinds of machine-made lace

Take a large-sized bottle—a common junk bottle will do—and wind it smoothly with several thicknesses of white cotton, or at least two thicknesses of clean white flannel. Fasten this smoothly. Begin at the lower end of the bottle and wind the lace around it, the scalloped edge down, bringing it around so that the edge of each row just overlaps the straight edge of the preceding row. With a fine thread baste the lace in position, pulling it out evenly, and snug, but not stretched, over the flannel. Over this wind carefully two thicknesses more of white flannel or stout cotton cloth, sewing it snug. Put this into a kettle and cover it with soft water, in which sufficient soap of the best quality—White Castile, if you can get it—has been shaved to make a good suds. To this add a small half teaspoonful of borax, or a few drops of aqua ammonia. Let it come to a boil, and continue boiling only a few minutes. Set off the kettle, and remove the bottle when the water is cool enough to allow pressing out the suds gently with the hands. To rinse and starch the lace—put the bottle into a kettle of clean water, stirring in a few drops of bluing and stiffening of some kind. Rice flour starch is said to be the best, but well made common laundry starch is used, and simple gum-arabic water is recommended. When this water boils, take the kettle again from the fire and partially cool the water by standing. Press out all the moisture possible, then hang the bottle in the sunshine until its wrappings are dry. Rip off the outer flannel and remove the lace. If the edge does not look even and new, pick out the pearling with a pin. Of course the lace should not be ironed.

This involves some trouble, but if one wears nice laces, it is worth while to take care of them. If they are laid away after every wearing in a mixture of powdered pearl starch and magnesia, they will seldom need washing. For common use and children's wear, thin muslin ruffles and pleated footing are serviceable. I buy the footing, all pleated and doubled so as to make a double ruffle, at ten cents a yard. Washed and starched with the fine clothes, and ironed without unpleating, it makes a full double ruffle with a straight edge, and is as little trouble and as cheap and pretty as anything for children's common use.

House Decorations.

A sister who inclines to help me bear my burdens, says in a late letter: "Do you ever write of house decorations?" Very little indeed, I might reply. I have no time to make the pretty little ornaments, and not much taste for many that I see in other people's houses.

I shook hands with Thoreau (in spirit), many years ago, when I read his "Walden." He wondered how people could clutter up their houses with so many things which must be dusted and taken care of daily or become a nuisance—with collections of things which are beautiful in their place—but mere rubbish in our houses.

Still, I do know that little touches here and there, brighten up a room and make it cheerful and homelike, instead of bare and barny, and each homemaker must judge for herself what she can afford, and what best use of her time she can make.

Sister, writes: "I have seen some very pretty and inexpensive lambrequins for brackets or shelves, made of scarlet or navy-blue opera flannel, or ladies' cloth, on which are sewed figures cut from lace curtain material. A yard of curtain material contains enough to go a great ways, and some of it has very pretty figures of ferns, etc., which can be arranged to suit the taste. Across the room, this looks like bead-work, and it requires very little time and labor. The edge may be pinked or bound with thin, white muslin."

"Persian rugs are quite in fashion, and very pretty. The ladies use remnants of Brussels' carpeting, cut in strips about a finger and a half wide, and then ravelled. Then they knit strips about a finger wide, garter-stitch, with strong twine, knitting in, in loops, the ravelled Brussels' yarn, shading it to suit themselves. These rugs are very durable but at the same time they are slow to make."

The Management of the Washing.

BY "CERES," HOWARD CO., MD

I confess to a little surprise that "Faith Rochester," who evidently brings so much thought to bear upon everything connected with domestic economy, has not yet, as indicated by her article in May last, come to repudiate all washing fluids, chemical soaps, and the like. In this respect, at least, I am in advance of her, having tried many of them, and being in turn an advocate for most of them, until disgusted with each. I have come back to first principles: *pure* soap and good management in the use of it. I am satisfied that when chemical preparations are used, in soaps or otherwise, the clothing will not last nearly so long, and will not retain a good color or smell without special care. I have, until lately, allowed my wash-women to take their accustomed course, which usually is very similar to that described in the article above referred to, not, however, forgetting my own early lessons, which often led me to put my nose into the middle of a basket of clothes just from the clothes line, to ascertain whether they smelled as sweetly as they used to "at my mother's." The verdict was invariably against them, however nicely they looked. A new wash-woman, and one not past the teachable age, led me to try whether my mother's practice would work as well in these days, and the result is so satisfactory I am tempted to give it to the "*American Agriculturist* family."

The clothing for the week's washing being duly

assorted, it is well to place coarse and badly soiled articles by themselves in warm suds, to soak until you are ready for them. Then take the colored clothes, wash, rinse, and starch, and hang them out to dry; flannels, also, should be disposed of in the early part of the day. These done, proceed to the white clothes. A little soaking in as warm suds as can be conveniently managed, is undoubtedly a help, and with that and the washing through two good suds, kept as clean by removing as your supply of water will admit of, brings them ready for scalding (not boiling.) One should never have less than three tubs to use in a family washing, and four are better. Into the deepest tub you have, throw the garments as they are washed from the second suds, shaking them loosely, and rubbing a little soap when there is any indication of its being needed. When the tub is nearly full, or you have all the clothing of that class in, pour over it *boiling* water in which a little soap has been dissolved, until they are well covered with the water; then cover the tub with a blanket, or whatever will hold the steam, until you can bear the hand in to wash the clothes out of this water. As this is the last of the washing, every part should be carefully examined and have whatever rubbing may be necessary; wring lightly, as the suds helps the bleaching, and spread on the grass, where the sun will fall on them the rest of the day, and keep them wet by an occasional sprinkling from a garden watering pot. This scalding has to be repeated if you have more than one tubful of clothes. With the coarsest and most soiled articles, there is no objection to boiling for a few moments, but I would advise taking from the boiling water into fresh, clean suds, before putting out on the grass. This part of the washing can be accomplished, and everything cleared up, by one or two o'clock, where there is a good, large wash. As the clothes should be left out to bleach all the afternoon, this part of the day can be utilized, if you are hiring by the day, in having the calicoes ironed. As late as you can conveniently do so, have the clothes taken from the grass, still keeping the coarse and fine ones separated, and put to soak in a liberal supply of clear water. The next morning, have them rinsed from this water, or one *slightly* blued after it. If dried under favorable circumstances, they will look so white and smell so delightfully pure and fresh, it will be a pleasure to wear them, and you will have the comfort of knowing your clothes wear out, instead of washing out—a much slower but more satisfactory process.

Household Notes and Queries.

"PARKER HOUSE ROLLS."—These very light, delicious rolls, which are generally obtained in perfection from the bread-bakers only, we recently found home-made, equal to the best, at Mrs. L. J. Post's "Maplewood Mansion," Ellenville, N. Y. The recipe was solicited and tried at home with good success. Here it is: Sift 4 quarts of good flour; take 1 quart warm milk, and melt in it 1 teacupful of butter, and add 2 tablespoonfuls of white sugar, a teaspoonful of salt, ½ teacupful of baker's yeast, or its equivalent yeast cake. With these and part of the flour make a soft sponge at night if wanted for breakfast, or in the morning if for tea. When the sponge is light, early in the morning, or in the afternoon, add the rest of the flour, and knead as for bread. Roll out as for tea biscuit, and cut out in round forms about 3½ inches in diameter. Grease about half the surface with butter, and lop it over, not quite half way. Let them rise in a warm place half to three-fourths of an hour, and bake quickly.

THE QUEEN OF PUDDINGS AGAIN.—This time the recipe comes from New Zealand, for which we return thanks. We suggest to our friends that we are so well supplied with this recipe, that they need not be at the trouble of sending any more.

LIQUID STOVE POLISHES.—Some, at least, of these need to be used with caution, as they contain naphtha, a highly inflammable fluid, which it is dangerous to have about. A case is reported in the New York daily papers, of a death which resulted from the "explosion" of "Boynton's Liquid Stove Polish." The explosion was probably of a mixture of the vapor of the naphtha with the air. Selling this liquid in any form, should be restricted by law. Employing it in an article to be used in families is simply wicked. Avoid all such stove polishes.

MAKING PICKLES.—The accumulation of inquiries from new readers make it necessary to repeat certain points in pickle making, each season. The inquiry generally is: "How can I make pickles like those sold in glass jars?"—To answer this and others in brief,—really good pickles can not be made by putting cucumbers, etc., directly into vinegar. Salting removes natural juices, and allows the vinegar to penetrate the cucumber throughout. Some pickles may be made from cooked vegetables without salting; and ripe peaches and other fruits are pickled without salting, using boiling vinegar. Pick the cucumbers daily, always with the stems on. Wash, if needed, and place in a barrel, sprinkling salt among them; half a bushel of best salt is required for a barrel of pickles. Place a cover weighted with stones on the pickles, and add water to reach the cover. If few cucumbers are gathered daily, it may be more convenient to put them into a jar or keg of brine made strong enough to float a potato, using a weighted cover to keep them down. About four weeks are required to thoroughly salt them, and they may be kept as much longer as desired, by care in replenishing the brine if need be. *All bright green* pickles are made so by *copper*, indirectly used by preparing them in copper cauldrons, or directly, by the intentional use of verdigris. The attractive appearance of the pickles "sold in glass jars," is due 1st to this greening, and 2d to the use of colorless vinegar. That sold as "White Wine Vinegar," is made from whiskey or other form of alcohol; it is just as wholesome as any other, but is merely sour, without the pleasant fragrance of pure cider vinegar. Those who regard quality rather than appearance, will use cider vinegar only for their pickles. Green tomatoes, string beans, etc., are treated the same as cucumbers.

BOYS & GIRLS' COLUMNS.

The Young Microscopist's Club.

"What, more insects?" some of you perhaps will say. How can I help it? I propose to answer the questions as well as I can, sent by the members of the Club; and if nine out of ten of the inquiries are upon insects, the replies must be somewhat in proportion.. .A box came a few days ago, which, when opened, appeared at first sight to contain some leaves nicely packed in cotton, but as the cotton began to move and soon became rather lively, I saw that it was a specimen of

The Woolly Aphis, or Woolly Plant Louse,

which is in some parts of the country unfortunately too common. If you see, especially upon young fruit trees what look like patches of white mould, or if you find a twig that appears as if some one had wound it loosely with cotton or wool, as in fig. 1, you will do well to take a specimen home and examine it with your Microscope. While the surface of the mass is of white threads, you

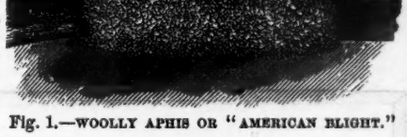


Fig. 1.—WOOLLY APHIS OR "AMERICAN BLIGHT."

will find by looking below the surface, a very lively lot of small insects, little blackish plant-lice, about one-tenth of an inch long; one of them is shown of the natural size in the upper part of figure 2. But the threads—almost as white, but coarser than cotton fibres and most wool—where do they come from?—That is the curious part of it. They come from the body of the insect, which seems to have the power of producing them as needed. The lower part of figure 2 shows one magnified, with the tuft of threads. You may ask

"What this Wool is for?"

It is said that it allows the insect to be carried for long distances by the winds, and one of its uses may be to scatter it abroad, but I think its chief use is to conceal this plant louse from its enemies; it must be a sharp-eyed little bird that can see anything like food in this mass of wool. It is curious to see how their instinct leads them to huddle together in masses; a single insect does not seem to have wool enough to hide him, and they seem to know that by getting together in large numbers, they can help one another, and make a more complete hiding place. So the little fellows stick their bills into the tender bark of our young trees, and suck away for a living, while they are well concealed from their enemies. "But do they not injure the trees?"—Indeed they do; on this account they are called, in England, where they are very plenty,

Fig. 2.—APHIS.

"The American Blight,"

which is hardly fair to this country, as the insect came to us from the Old World. They are sometimes in such numbers, so rapidly do they increase, as to destroy young orchards. They are easily killed by the use of soft-soap, brine, or whitewash, put on with a brush. The scientific name of the Woolly Aphis is *Eriosoma lanigera*. The first name is from the Greek for "woolly-body," and the other is the Latin for wool-bearing.... Another insect common in greenhouses, and sometimes found on house-plants, hides itself in a similar manner to the one just described, viz., the well known

Mealy-Bug

of the gardeners. This is often found alone in forks of the stems of greenhouse plants or on the veins of the leaves. It is not a plant-louse, but belongs to another family,—the Scale insects. This is able to cover itself with wool, which rather than hiding it makes it the more easily seen on the green surface of the plant. Like other scale insects, it fixes itself to the plant while very young, and does not move afterwards. The insect without the "meal," or wool, is, according to Doct. Packard, that shown much enlarged in fig. 3. When covered it is a shapeless tuft of down. When there are not many they may be picked from a plant with a small sharp-pointed stick, or may be touched by a small brush dipped in alcohol.... Here is an inquiry not about insects. "T. G." wishes to know if our Microscope will show all the parts of ferns, and how, in collecting, to tell a fern from a moss. No, it would take a very costly instrument to "show *all* the parts of ferns," but it will allow him to see all the parts that are used in studying ferns, to tell one kind of fern from another. As to telling a fern from a moss, it will be better for me in the first place to briefly answer the question,

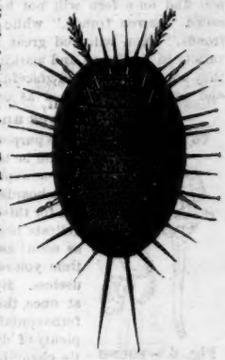


Fig. 3.—MEALY BUG.

"What is a Fern?"

as this has also been asked by several others. Our ferns generally have their stems below-ground, from which arise the leaves (often called *fronds*), and these in the majority of kinds are rolled up in the bud in a graceful shape, as if the rolling had begun at the end, so that the leaf as it is coming out is in the shape of a bishop's crosier, as in figure 4, which shows two buds. On the veins, on the underside of the leaf, or along its margin in some, you will find a great number of dots, some round, and others long, which are called *fruit-dots*, and these serve mainly to distinguish ferns from other plants. I should have stated in the first place that ferns belong to the great series of

Fig. 4.—FERN BUD.

Flowerless Plants;

they have no proper flowers and produce no proper seeds, like the common plants we are familiar with, and though these spots on the back of the leaves are called "fruit-dots," it only means that they answer the same purpose that fruit does in other plants—that is, that they are concerned in producing new plants. Figure 5 shows a bit of a

fern frond, with the fruit-dots on the under-side; each one of these dots is, when young, covered with a little shield, which, when the plant is old, is often not easily found. Under this is a cluster of curious bodies called *spore-cases*, and very pretty things they are, when you examine them with the microscope. They are usually brownish, each little case upon a stalk, and around the case a jointed band, as seen in figure 6. When the spore-case is ripe, this band straightens out, and tears the case open to let out its contents. Being a spore-case, you will have guessed that the contents are *spores*. If you shake a fern leaf over a sheet of white paper, when these spore-cases are mature, you will collect a very fine dust, the spores; these are minute grains, some of which are shown in figure 6, which is of course greatly magnified. Each one of these minute spores can

Answer the Purposes of a Seed

in producing a new plant, but it is not a real seed, as it has not, like a true seed, a little plant, or *embryo* inside of it. The manner in which it grows to produce a new plant would hardly be understood by youngsters, and you must let that go at present, as one of the things to be learned hereafter. A few of our ferns do not produce

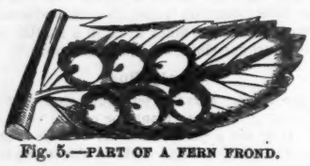


Fig. 5.—PART OF A FERN FROND.

their spore-cases in fruit-dots on the back of the leaves, but I can not now describe these. All the leaves you will find on a fern will not bear fruit-dots, these are called "barren fronds," while the others are "fertile fronds." You will find great beauty and a wonderful variety in the forms and markings of the ferns; indeed they are so delicate and graceful that many are gathered and pressed, to be used as ornaments, and to make

Fern Pictures and Bouquets.

To collect ferns for this purpose, a portfolio with paper should be taken on your fern hunt. Old newspapers between two stiff pasteboards will answer. The reason for this is that many of the most delicate begin to wither and curl up as soon as gathered, and by the time you reach home they will be useless. By putting them in press at once, this is avoided. As most ferns contain but little moisture, if plenty of dry paper be used but little changing will be needed. You should keep the ferns under pressure until you wish to use them in making up.—I shall have to tell you a little about mosses another time.

Fig. 6.—YOUNG FROND.

Aunt Sue's Chats.

C. C. F. wants to know "what will kill the nerve of a tooth—and what will remove freckles?"—You should apply to a dentist to kill the nerve; he killed one of mine very easily. Lemon-juice and many other remedies are proposed for freckles, but I never yet met any one who had been benefited by their use. If your skin is of the freckling sort, and you go out into the sun and air, you will get freckled; even if you should get rid of one set, you would soon get another. Your best plan is to not care two cents about the matter, but to be pleasant and jolly, so as to make you and your freckles welcome wherever you may go.

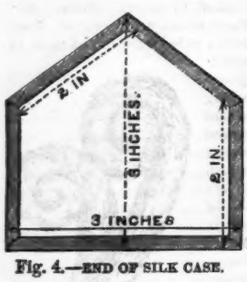


Fig. 4.—END OF SILK CASE.

MOLLIE.—A "diamond wedding" is celebrated seventy-five years after marriage. A golden wedding, fifty years; a silver wedding, twenty-five years; crystal, fifteen; tin, ten; wooden, five; and paper, one year.

MAMIE.—A very pretty "gift, for less than a dollar," is a Sewing-silk Case made of perforated card-board, ribbon, etc. Get a sheet of pretty finely perforated card, and cut from it two pieces, each of the size and shape of figs. 3 and 4, and one each, of figs. 1 and 2. If one of the large pieces contains about 120 holes the long way, and 50 holes across the width, cut the slits as directed by the number of holes in the pattern (fig. 2); otherwise you must be guided by your eye. When cut they are lifted up slightly, to tuck the silk-winders under. On the other large piece, work the word "SILKS;" then put the two pieces back to back and bind them all round with lute-string ribbon ¼ of an inch wide (blue or any color you prefer). Bind all the other pieces, singly, with the same ribbon, then overhand them together as in fig. 6 (next page). Some little design may be embroidered on the pointed pieces, for ornament, or a pretty little picture may be stuck on each. Sew a ribbon-string to each point. Cut, out of plain white card-board, seven winders, the shape of figure 5. Wind two or three different colored silks on each winder, and tuck them in under the "slits." Cut one or two slits in each winder (fig. 5, next page) to fasten the ends of the silk after winding. The two side pieces (fig. 3) should just meet when closed over the silk-winders. Shut these up first, then turn the end pieces over and tie them together with ribbons.

Fig. 1.—AUNT SUE'S SEWING SILK CASE.

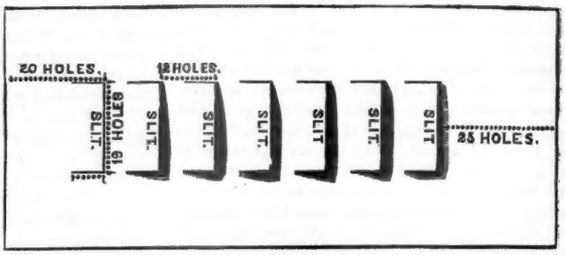


Fig. 2.—SEW BACK-TO-BACK WITH FIGURE 1.

Thanks for puzzles, letters, etc., to "Boby," Louisa J. S., "Little Boy," B. D. T., Effie S., C. M. M., Willie, Birdie, Sarah J. W., John J., Dot, Amanda G. C., Moppet, and G. W. Z.

Aunt Sue's Puzzle-Box.

CLASSICAL ACROSTIC.

The initials name a hero of antiquity; and the finals a mythical king of Italy, to whom was ascribed the introduction of agriculture.

1. A son of Zeus, who, even as a baby, displayed the qualities which betokened a capacity for mercantile pursuits.
2. A monster, the upper part of whose body was that of a maiden, while the lower was that of a serpent.
3. Was usually said of animals only, but Virgil said of man.
4. Is the typical part of the name of a promontory of the Tauric Chersonese.
5. Was one of the distinguishing appellations of "Gallia" or Gaul.
6. Was a priest of Apollo.
7. Is a Latin interjection.
8. Was a celebrated gladiator, who defied Rome in vain.

J. A. B.

NUMERICAL ENIGMAS.

1. I am composed of 29 letters:
   My 12, 4, 23, 2, 6, is an Indian boat.
   My 1, 13, 3, 8, is a title.
   My 28, 19, 26, 17, 11, 9, is a field flower.
   My 10, 29, 24, 27, is a vegetable.
   My 7, 16, 22, 5, is proud.
   My 15, 14, 3, 21, is a girl's name.
   My 25, 18, 20, 19, is a place for money.
   My whole is a proverb translated from the Latin.

ALBERT AND AUGUSTA.

2. I am composed of 9 letters:
   My 9, 3, 6, is a kind of fruit.
   My 2, 5, 6, 1, is a kind of fruit.
   My 4, 8, 7, 9, is a piece of money.
   My whole we should all acquire, if possible.

IMOGEN WELD.

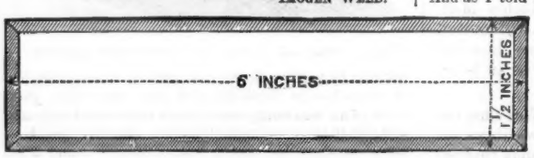


Fig. 3.—SIDE-PIECE OF AUNT SUE'S SEWING SILK CASE.

HOLLOW SQUARE.

* * * * * * Top—is an inventor. Base—is moderately. Left side—is a countryman. Right side—to explain. First letter of top word is also first letter of left word. Last letter of top word is first letter of right word. Last letter of left word is first letter of the bottom word.

TRY AGAIN.

HIDDEN HOUSEHOLD ARTICLES.

1. Fred, is Harry ready to take a stroll?
2. Our walk was most romantic! Up hill and down dale.
3. In the afternoon we walked up and down the street.
4. Oh! Charlie is too liberal, altogether.
5. He says he doesn't care for King or Queen.
6. Does Mat owe less than Tom?
7. Please get me an extra yard for a pocket.
8. Sew the bow loosely on the side.
9. She was lovely;—nose classic, hair luxuriant, form perfect.
10. What a goose he was to veto such an excellent proposition.

CROSS-WORD.

My first is in blossom but not in leaf,
My next is in robber but not in thief,
My third is in hover but not in fly,
My fourth is in plodding but not in ply,
My fifth is in buzzing but not in hum,
My sixth is in finger but not in thumb,
My seventh is in liking but not in love,
My eighth is in pigeon but not in dove,
My ninth is in garden but not in plot,
My tenth is in drunkard but not in sot,
My eleventh is in anchor but not in stay,
My twelfth is in fodder but not in hay,
My thirteenth is in shilling but not in cent,
My fourteenth is in circus but not in tent:
My whole smooths many a pathway,
Dispels full many a fear,
It comforts many a sorrow,
And dries full many a tear.

SQUARE WORD.

1. Marks of injury. 2. To grumble. 3. An artery. 4. Calamus of India. 5. Axeltree iron.

LITTLE FOLKS.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

ENIGMATICAL BOUQUET.—1. Iris. 2. Tulips. 3. Sweet pea. 4. Candy-tuft. 5. Catchfly. 6. Dew-drop. 7. A rose.

PUZZLE.—CIVIL.

CROSS-WORD.—Bartholomew

NUMERICAL ENIGMAS.—1. "That life is long which answers life's great end." (Up to date [July 18th], Bessie [of Newburyport] is the only one who has sent an answer to this enigma.) 2. Fish geranium. 3. Sweet corn. 4. Harmoniphon.

SQUARE WORD.

A B L E
B E E T
L E F T
E T T A

Correspondents will save time, if they will address their letters (to Aunt Sue) to Rowayton, Fairfield Co., Conn., from July to December of this year. But please remember that AUNT SUE is *not Orange Judd Co.*; the latter must be addressed at 245 Broadway, N. Y. City.

Aunt Polly's Visit to the City.

BY AUNT POLLY.

Well! 'Liza Jane, I'm glad to be to hum, though I did hev a nice time, and seen a powerful lot of things. I might as well begin to the beginnin' and tell you all about it. You see goin' as I did, rather sudden, there was no one there to meet me to the station; but Lucy's folks livin' near, I didn't hev no great amount o' trouble to find 'em. When I got to the front door, I jest stopped in wonderment, for there was two winders in it of colored glass for all the world like a church, and I think it's *persumin'* to imitate the House of God in that manner. Well, the door was opened by a colored gentleman dressed up *spruce*, I can tell you, with a white necktie, and gloves, if you please, to say nothin' of a swallertailed coat. And as I told Lucy afterward, I thought it was extravagant and highfalutin' to dress him so fine, and if she wanted, I'd send her the pattern I make John Henry's clothes by, and then she could make 'em herself. Well, when I said I'd like to see Mrs. Orson, if he didn't go and hold out a waiter; and I tell you I *was* scared, for I didn't know but what he wanted money, and as he see how surprised I was, says he, "your card, ma'am." Then says I, "I ain't got no card; you can jest go up and tell 'em Aunt Polly Beacon's come."

You ought t'hev seen the room I slept in. I allow t'was purty fine, but there was some things I didn't like about it. They told me to ring the bell if I wanted anything, but I didn't see no bell, only a row 'o little knobs on the wall that I darsn't touch for the world. Then the

door—why I didn't know but I should get locked in and found dead years after, like that woman they sung about down to the town hall last spring, called the "Mistletoe Bough." There was so many knobs and handles on it that I thought I never'd get out. Why can't people stick to the good old latches that everybody understands. In the mornin' they showed me over the house, it must have cost a sight o' money, but things were mighty queer, I tell you. In Lucy's room they had curtains instid o' doors, and pieced they was at that! Why! they thought nothin' o' puttin' two or three kinds o' stuff together. When I saw the next room I *was* beat, for they had nothin' but pine furniture in it, and the carpet warn't big enough for the floor. Then there was a little settin' room, and they didn't have no carpet at all there, only a mat laid down; and the curtains they said was very rare, and I should hope they *was*, for I never see sech thin stuff in all my life, and of the strips of trimmin' on 'em, there wasn't two alike. And, if you'll believe it, there was three kinds of paper on all the chamber walls; just as if they didn't hev enough, and pieced it out with another kind. The little strips around the top they called a "*freeze*," and the one around the bottom a "*dado;*" a "*dado!*" Did you ever hear anything so silly! I was particular 'bout rememberin' them names, for I know'd you'd be struck when you heard 'em.

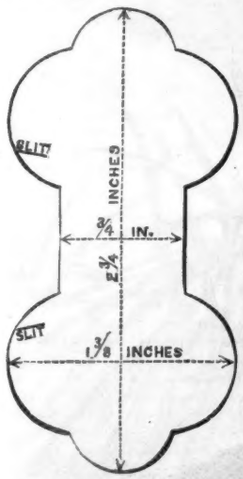


Fig. 5.—SILK WINDER.

The keepin' room was queer, you'd better believe, (drawin' room, they called it, and I declare to goodness, I don't see the sense of half their new fangled names). There was a three-legged pianer in it, and them "dados," and "freeze," and against the chimbley was a kind of little dresser that they had full o' chiny, (vases and pitchers and sich). Some of the vases they said, too, was more valuable than silver, because they had hand painting on them; but such daubs you never saw. Why our old rooster would a done as well if you'd given him the paint. The andirons I *was* took by, and if uncle Obadiah hadn't promised to give us his'n when he dies, I'd a mebbe brought some home with me.

I didn't see a bit of white chiny while I was there, and what they did when they had company to tea, I'm sure I don't know. I never seed Faith Rochester write about any such thing in the *American Agriculturist*.

When I was in Almira's room, I seen what I thought was a clock, and says I, "where did you get such a pretty clock?" And says they, "laws! don't touch that, or you'll set it off; that's the burglar alarm." And I tell you what it was, I didn't hev a minute's peace the rest o' the time I was in that house, thinkin' what if the thing should go off, for I was forty times as 'fraid of that as I was of the burglars; and I suggested to Lucy that settin' a tub o' water to the head of the stairs was a very good way of frightenin' burglars.

When I seen the dinin' room, I just give up; for if they didn't hev fancy plates, they called 'em "placques," or some sech name, hangin' to the wall, and the ceilin'! Well, they had some painted ceilin's that was very han'some, but this one—why I actually believe that after they got through paperin', they just took all the pieces they had left of every kind in the house, and pasted 'em onto that dinin' room ceilin'!

By the way, how'd the last churnin' turn out; and *did* my receipt cure old Miss Pipkin's rheumatiz?

International Sunday School Lessons.

A few weeks ago Rev. Dr. Vincent stated in London, that **7,500,000** Teachers and Pupils in the United States and Canada alone, were every Sabbath Day studying *the same* portions of Holy Scripture. Millions more in other lands use the same lessons. It will doubtless interest the friends of this Journal to know that the present popular plan of using International Lessons originated and received its largest impulse through the *American Agriculturist*. Thirty years ago (1848) Mr. Orange Judd prepared a regular series of lessons for each quarter, and posted them conspicuously in the S. S. room. Following up the plan from year to year, with the assistance of Dr. James Strong, S. T. D., the series of lessons below were prepared in 1860-1, and used for two years, and they were published in this Journal, February, 1862, and another series was issued in December, 1862, for 1863. Two other similar series from the Old Testament were subsequently issued, viz., No. 3, Adam to Elijah, and No. 4, Elijah to Christ. Hundreds of thousands of cards or slips, with these lessons, were called for and sent all over the country. In response to a general demand, four Question or Lesson Books were issued, entitled "*Lessons for Every Sunday in the Year*," Nos. 1, 2, 3, and 4, of which many hundreds of thousands were used in the Sunday Schools of all the leading Christian Denominations. This paved the way for, and led to the present International Lessons. (The dates for the lessons as first prepared for 1861, correspond with those of the present year, 1878). There was one advantage in this series not sufficiently provided for in the present series, we think, viz., that the children were expected to *commit to memory* an average of seven consecutive verses every week and they thus *stored in the mind* some 350 or more verses of the sacred text every year.

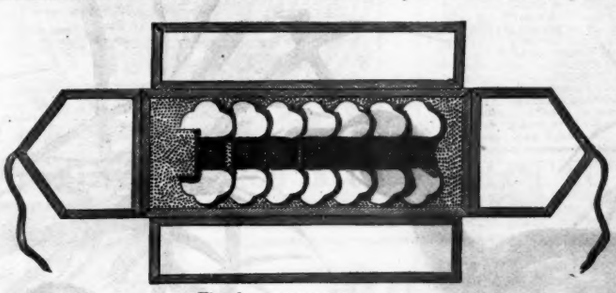


Fig. 6.—SEWING SILK CASE.

1861.	Subject.	Chapter.	Verses.
1. Jan'y	6 Angels at Bethlehem	Luke ii,	8 to 14
2. "	13 Visit of the Magians	Matt. ii,	3 to 9
3. "	20 Christ at twelve years of age	Luke ii,	42 to 49
4. "	27 The Baptist's Mission	Mark i,	4 to 11
5. Feb.	3 Christ's Temptation	Matt. iv,	3 to 10
6. "	10 Interview with Nicodemus	John iii,	1 to 8
7. "	17 Christ equal with the Father	John v,	18 to 24
8. "	24 Doctrine of the Sabbath	Mark ii,	23 to 28
9. Mar.	3 Parable of the Sower	Matt. xiii,	3 to 9
10. "	10 Calling of the Twelve	Matt. x,	1 to 7
11. "	17 John's Imprisonment	Mark vi,	21 to 29
12. "	24 Christ the Bread of Life	John vi,	26 to 33
13. "	31 The Transfiguration	Matt. xvii,	1 to 8
14. April	7 Necessity of Childlike Temper	Matt. xviii,	1 to 7
15. "	14 Appointment of the Seventy	Luke x,	1 to 7
16. "	21 Parable of the Good Samaritan	Luke x,	30 to 37
17. "	28 The Lord's Prayer	Luke xi,	1 to 8
18. May	5 Christ the Good Shepherd	John x,	1 to 7
19. "	12 Parable of the Prodigal Son	Luke xv,	11 to 19
20. "	19 The Lord's Supper	1 Cor. xi,	23 to 29
21. "	26 The Agony in Gethsemane	Luke xxii,	39 to 46
22. June	2 Seizure of Christ	Luke xxii,	47 to 53
23. "	9 Peter's Denial	Luke xxi,	54 to 62
24. "	16 Christ before the Sanhedrim	Luke xxii,	63 to 71
25. "	23 Christ before Pilate	Luke xxiii,	1 to 7
26. "	30 Christ before Herod	Luke xxiii,	8 to 16
27. July	7 Christ Sentenced by Pilate	Luke xxiii,	18 to 25
28. "	14 The Crucifixion	Luke xxiii,	32 to 38
29. "	21 Death of Christ	Luke xxiii,	41 to 53
30. "	28 The Sepulchre Guarded	Matt. xxvii,	61 to 66
31. Aug.	4 Resurrection of Christ	Mark xvi,	1 to 8
32. "	11 Christ's Appearances	Mark xvi,	9 to 16
33. "	18 The Ascension	Acts i,	6 to 12
34. "	25 Gift of the Holy Spirit	Acts ii,	1 to 7
35. Sept.	1 Peter & John before Sanhedrim	Acts iv,	5 to 12
36. "	8 Community of Goods	Acts iv,	31 to 37
37. "	15 Martyrdom of Stephen	Acts vii,	54 to 60
38. "	22 Conversion of Paul	Acts ix,	1 to 8
39. "	29 Conversion of Cornelius	Acts xi,	11 to 17
40. Oct.	6 Founding the Church, Antioch	Acts xi,	19 to 27
41. "	13 Peter delivered from Prison	Acts xii,	1 to 6
42. "	20 Paul appointed Missionary	Acts xii, 24 to xiii,	5
43. "	27 Decree of Council at Jerusal'm	Acts xv,	22 to 29
44. Nov.	3 Philippi Jailor Converted	Acts xvi,	25 to 31
45. "	10 Paul's Preaching at Athens	Acts xvii,	22 to 28
46. "	17 Tumult at Ephesus	Acts xix,	21 to 27
47. "	24 Arrest of Paul at Jerusalem	Acts xxi,	27 to 33
48. Dec.	1 Paul begins Voyage to Rome	Acts xxvii,	1 to 6
49. "	8 Storm during Paul's Passage	Acts xxvii,	13 to 20
50. "	15 Paul Encourages Mariners	Acts xxvii,	27 to 34
51. "	22 Escape from the Wreck	Acts xxvii,	38 to 44
52. "	29 Paul's Arrival at Rome	Acts xxviii,	11 to 16

The above Lessons embrace, in order of occurrence, some leading events, parables, etc., from the birth of Christ to the end of the Acts of the Apostles—about 61 years—and give a connected view of the history of that period. The lessons are in *order of time*, and the first 32 are severally selected from that one of the four Gospels which gives the best account within the compass of about 7 verses.

Tall Structures—Washington's Monument.—The *highest* human structures now extant are, we believe, as follows:—1. Pyramid of Cheops, in Egypt (480 feet); 2. Strasburg Cathedral (474 feet); 3. St. Peter's, Rome, (458 feet); 4. St. Stephen's Cathedral, Vienna, (445 feet); 5. Salisbury Cathedral, England, (406 feet); 6. Antwerp Cathedral, Brussels, (405 feet); 7. St. Paul's Cathedral, London, (404 feet); 8. Milan Cathedral, Italy, (400 feet); 9. United States Capitol, Washington, (307½ feet). The Cologne Cathedral was planned to be 511 feet, but after over 400 year's work upon it, it is far from completion. The Washington Monument Obelisk was at first started for a hight of 600 feet. It is now taken in charge by the Government, and is to be 485 feet high, making it the loftiest artificial structure in the world. Some are in favor of adding 30 feet more, so that should the Cologne Cathedral ever be finished, we should still have the highest structure. Five hundred feet is less than one-tenth of a mile (5,280 feet), and is but a small hight compared with the mountains of one to five miles elevation.

Talking at a Distance.

There are many ways of expressing our thoughts to others. Talking is the most common, though it takes the child years to learn what modulations or changes of the human voice represent different thoughts. We note down these sounds by letters of the alphabet and combinations of them. We learn what sounds a, b, c, d, etc., stand for, and in reading we utter the sound of each letter. The deaf and dumb, instead of sounds, use motions or positions of the fingers to represent different letters. Thus, three fingers held downward mean *m*; two fingers held down stand for *n*; if held upward they stand for *u*; the little finger held up stands for *i*, and so on. The Telegraph Operator uses dots and dashes instead of letters; thus one dot (.) stands for *e*; two dots (..) for *i*; three dots (...) for *s*; a dash (—) stands for *t*; two dashes (— —) for *m*; a dot and a dash (.—) for *a*; a dash and a dot (—.) for *n*, and so on. A bit of iron (moved by electricity) making short and longer "clicks" upon the ends of a magnet, stand for these dots and dashes, and the ear translates them into letters and thoughts. Ships communicate at sea by colored flags, which in different positions stand for figures, etc. These are only some of the ways....Here is one simple mode of talking at a distance, originated by one of the editors, for the young readers of the *American Agriculturist*. It requires no apparatus, will often be useful, and be good amusement. Suppose two persons are so far apart as that they can just see each other's hands and arms. They agree that if the

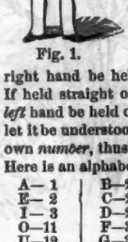


Fig. 1.

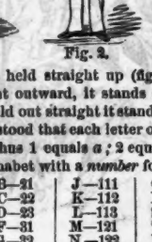


Fig. 2.

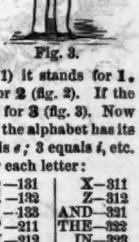


Fig. 3.

right hand be held straight up (fig. 1) it stands for **1**. If held straight outward, it stands for **2** (fig. 2). If the *left* hand be held out straight it stands for **3** (fig. 3). Now let it be understood that each letter of the alphabet has its own *number*, thus 1 equals *a*; 2 equals *e*; 3 equals *i*, etc. Here is an alphabet with a *number* for each letter:

A—1	B—21	J—111	Q—131	X—311
E—2	C—22	K—112	R—132	Z—312
I—3	D—23	L—113	S—133	AND—321
O—11	F—31	M—121	T—211	THE—322
U—12	G—32	N—122	V—212	IN—323
Y—13	H—33	P—123	W—213	

NOTE.—Any other figure or number can be chosen for any letter. The numbers representing the several letters can be changed as often as desired.

Now suppose James wishes to tell George in a distant field to "*come to dinner*." He holds right hand out twice for 22 or *c*. Dropping both hands, he next throws the right one up twice for 11, or *o*. Next right hand up for 1, right hand out for 2, and right hand up for 1, or 121, equalling *m*. Next his right hand out for 2, or *e*. Next, right hand out, and right hand up twice, for 211, making *t*; then right hand up twice for 11 or *o*. Next, right hand out, left out, for 23 or *d*; then left hand out for 3 or *i*; then right hand up and out twice for 122 or *n*; then right hand out for 2 or *e*; then right hand up, left out, right out, for 132 or *r*—drop the hands between each letter, and pause a little between the words. All this can be done and understood quicker than you can read this description. Each can have the alphabet and numbers written down. The letters most used will soon be remembered. Two can talk silently in a room by simply using a finger or a pencil held up, right, and left.—Two parties may talk miles apart, if in sight of each other, by using a handkerchief or flag on a stick instead of the hand. Army officers talk to each other from hill-tops ten miles or more apart, by using flags several feet square, and portable telescopes to see the movements of the flags clearly.

Tim's Kit.

A big heart often lies under a rough exterior. Our older readers will remember the incident that occurred before the door of the *American Agriculturist* office, when a ragged boot-black offered a bite from his peach to a poor comrade, and seeing him take a small bite, exclaimed, "Bite bigger Billy."—The Detroit "Free Press" relates an incident that goes right to every heart. "Limping Tim" came among the "shiners" and newsboys aroound the P. O. and quietly said: "Boys, I want to sell my kit. Here's two brushes, a hull box of blacking, a good stout box, all for two shillin's."——"Goin' away, Tim?" asked a comrade.——"Not 'zactly, boys, but I want a quarter the awfullest kind just now."——"Goin' on a 'scursion?" asked another.——"Not to-day, but I must have a quarter," he answered.——One of the lads passed over the change and took the kit, and Tim walked straight to the counting-room of a daily paper, put down the money, and said: "I guess I can write if you'll give me a pencil." With slow-moving fingers he wrote a death notice. It went into the paper almost as he wrote it, but you might not have seen it. He wrote:

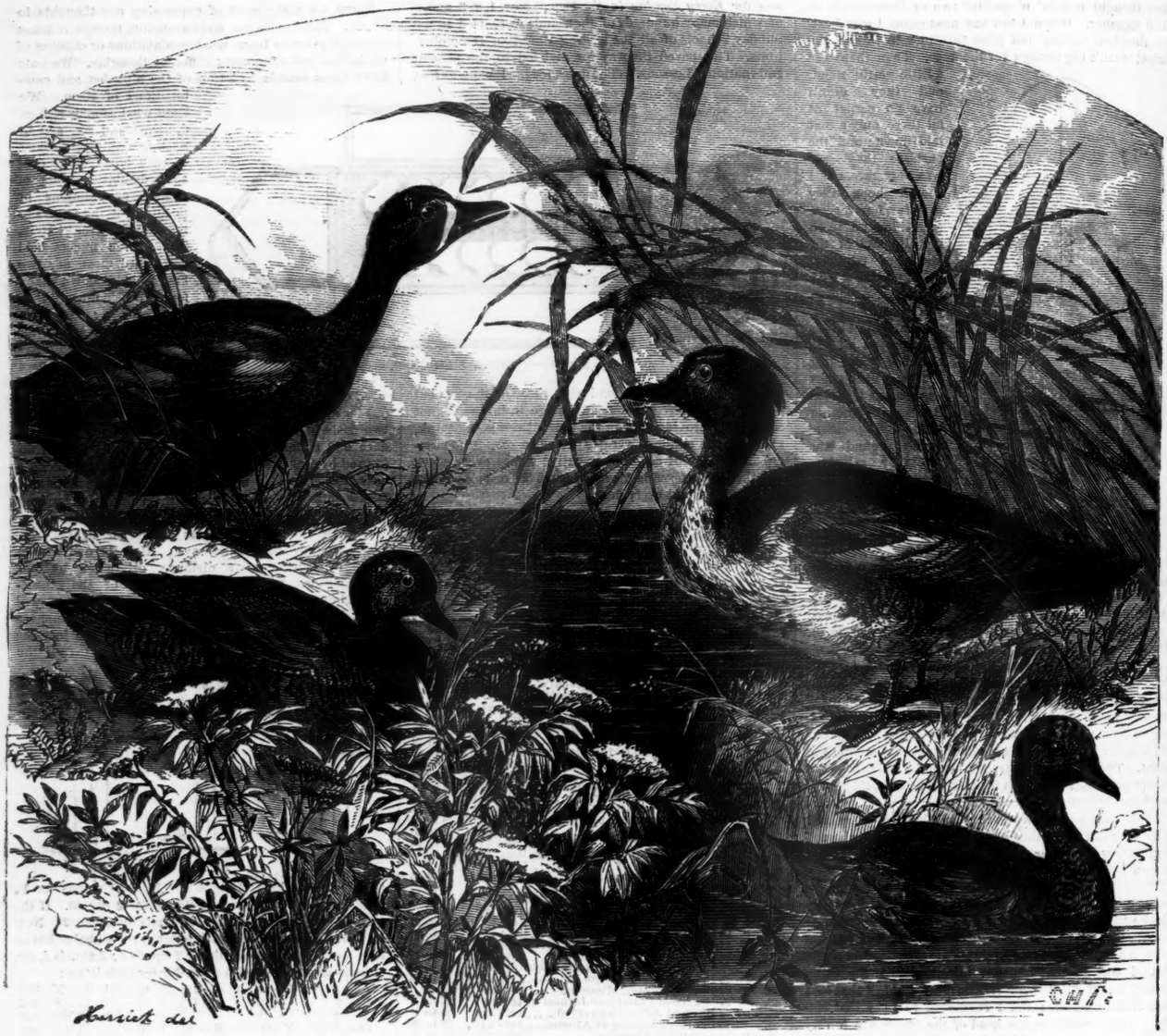
"Died—Litul Ted—of scarlet fever; aiged three yeres. Funeral to-morrer, gon up to Hevin; left won brother."

"Was it your brother?" asked the cashier.——Tim tried to brace up, but he couldn't. The big tears came up, his chin quivered, and he pointed to the notice on the counter and gasped: "I—I had to sell my kit to do it, b—but he had his arms aroun' my neck when he d—died!"

He hurried away home, but the news went to the boys, and they gathered in a group and talked. Tim had not been home an hour, before a barefooted boy left the kit on the doorstep, and in the box was a bouquet of flowers, purchased by pennies contributed by the crowd of ragged but big-hearted urchins. Did God ever make a heart which would not respond if the right chord was touched.

Our Native Water-Fowl.

Some months ago, we gave you a picture of some interesting land birds, and we now give an engraving of two of our most beautiful water-fowls, selecting those that are known in all parts of the country. While birds of different kinds have many things in common—such as feathers, wings, legs, bills, etc.—all made on one general plan, you will find on examining them that they are wonderfully varied, and that each is adapted to get its living in a peculiar way. When you see the wicked-looking bill, and the strong claws of a Hawk, you know that it means mischief, and that small birds must keep out of their way. If you see the long legs and long neck of the Cranes, you know that these birds must get their living by wading. So every class of birds shows in the form of its parts, the mode of life to which it is fitted. When we come to examine what are generally known as "water-fowls," the geese, the ducks, the teals, and others, we shall find them equally fitted for their particular kind of life. They are usually strong of wing, and can make long flights. When on the water they can swim, their webbed feet being especially suited to this kind of motion; then very often, such birds can dive, and get their food from the plants which grow only at the bottoms of the streams and ponds. The picture shows you two of our most beautiful water birds, the Blue-winged and Green-winged Teals, the last named being found all over the Continent, while the other has not yet been found west of the Rocky Mountains. The ornithologists—as those who study the science of birds are called—class these as "River Ducks," which do not, like some others, dive for their food, but live upon what they can find upon the margins of the waters they visit. These Teals are among the most common of our water-fowls, and though generally called "ducks," they differ from the true ducks, not only in structure, but in habits. The most conspicuous bird in the picture, the one at the left, and reaching forward, is the male of the Blue-winged Teal, and is readily known by the white mark like a crescent in front of the eye, as well as by the blue feathers upon its wings. The female, shown just below, has the blue wings of the male, but much more of brown in her general coloring. This bird appears in the Middle and New England States in April, on its way to its breeding grounds in the far North—though it sometimes nests in New England; and it again appears in autumn, on its way to the far South, where it passes the winter. The Green-winged Teal is shown on the right of the picture, the male on the bank above, and the female in the water below. It is very common in our fresh waters in both spring and fall, and usually passes for a duck, both with sportsmen, and in the markets. Fanciers in such matters regard the flesh of this bird quite equal to that of the celebrated Canvas-back Duck; it does not confine itself to water plants, but feeds also upon such grains and berries as it finds on land. It is very easily domesticated, and the wild birds have been known to feed with tame fowls in the farmer's barn-yard, and share their corn with them. The plumage of this bird is very beautiful; its head and neck are of a fine chestnut color, with a black chin; its wings are marked with a rich green, and it is especially distinguished by a showy curved white mark, just before the bend of the wing. Besides the Teals, here represented, the English Teal is sometimes found on our Atlantic Coast, and the one called the Cinnamon Teal is found in the far Western and Southern States.



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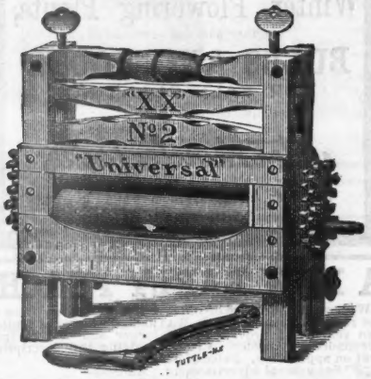

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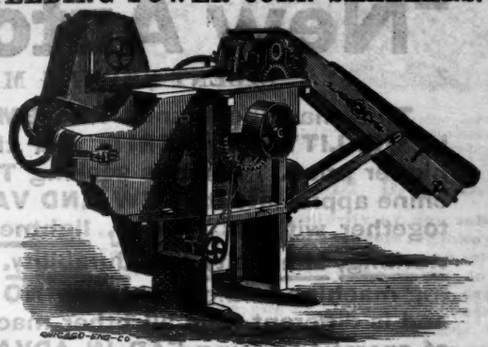

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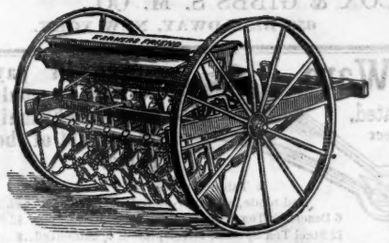

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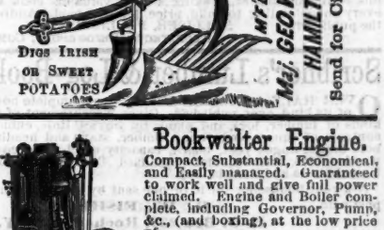

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25 FASHIONABLE CARDS, no two alike, with name, 10c. 20 Scroll, with name, 10c., post-paid.
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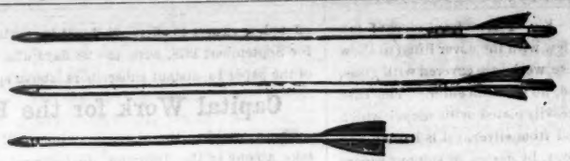

ARCHERY GOODS.

No.	BOWS.	
3.	Plain Lancewood Bows, 2½ feet..... each	$0 10
4.	" " 3 " ..... "	15
5.	Stained Lancewood Bows, 3¼ feet.....	20
6.	" " 3½ " ..... "	25
7.	" " 4 " ..... "	30
8.	" " 4½ " ..... "	40
9.	" " 5 " ..... "	75
10.	" " 5½ " ..... "	1 25
11.	" " 6 " ..... "	1 50
12.	Horn Tipped, Polished, 3½ " ..... "	75
13.	Horn Tipped, Polished, 4 feet.....each	1 00
14.	" " 4½ " ..... "	1 25
15.	" " 5 " ..... "	1 50
16.	" " 5½ " ..... "	2 00
17.	" " 6 " ..... "	2 25
17½.	Fine Lancewood Bows, Plush Handles, Stained and Polished, Horn Tipped, Fine Strings, 3½ feet, each.....	1 00
18.	Fine Lancewood Bows, Plush Handles, Stained and Polished, Horn Tipped, Fine Strings, 4 feet, each.....	1 25

19.	Fine Lancewood Bows, Plush Handles, Stained and Polished, Horn Tipped, Fine Strings, 4½ feet, each.....	1 50
20.	Fine Lancewood Bows, Plush Handles, Stained and Polished, Horn Tipped, Fine Strings, 5 feet, each.....	2 00
21.	Fine Lancewood Bows, Plush Handles, Stained and Polished, Horn Tipped, Fine Strings, 5½ feet, each.....	2 25
22.	Fine Lancewood Bows, Plush Handles, Stained and Polished, Horn Tipped, Fine Strings, 6 feet, each.....	2 50

Extra Quality Self Lancewood Bows.

Made to weight. French Polished, with best Flemish strings whipped, suitable for *Club use.*

		Each.
25.	5 feet, made to weight.....	$3 00
26.	5¼ " " "	3 50
27.	5½ " " "	3 75
28.	6 " " "	4 00
29.	Ladies' Lemonwood, 5 feet, made to w'ght	4 25
30.	" 5½ " " "	4 75
31.	" 6 " " "	5 00

Ladies' Best Back Bows.

2 Pieces, with best Flemish Strings.

33.	4½ feet, 20 to 25 pounds.....	$4 50 to $6 00
34.	5 " 22 to 33 "	5 00 to 7 50
35.	5½ " 25 to 40 "	5 50 to 8 00

Gents' Best Back Bows.

36.	2 Pieces, 6 feet, best Flemish Strings, 40 to 60 lbs., $7 50, $9 00, $10 50 and $12 00 each.	

Snakewood and Lancewood Bows.

2 Pieces.

44.	5 feet 3 inches, 20 to 40 lbs .....each	$ 8 50
45.	6 " 35 to 60 lbs ..... "	10 00

TARGETS, (Straw, with Canvas Baizes).

	Each.		Each.
12 in. diameter.....	$1 00	24 in. diameter.....	$2 50
15 "	1 25	27 "	3 00
18 "	1 75	30 "	3 50
21 "	2 00	36 "	4 00
42 "			5 00

Target Facings separate, one-quarter price of complete Targets.

Portable Iron Target Stand.

4 feet high.....	$2 00
4½ "	2 50
5 "	3 00
Largest.....	$4 00 and $5 00 each.

ARROWS.

No.		Per Doz.
1—12	inch, plain blunt points.....	$ 0 25
1½—15	" " "	30
2—16	" " "	40
3—18	" " "	63
4—20	" " sharp points.....	75
5—21	" " 3 feathers, sharp points.....	1 00
6—24	" " " "	1 25
7—21	" Polished, sharp points, for practice..	1 25
8—24	" " " " ..	1 50
9—28	" " " " ..	2 00
10—21	" " and painted.....	1 50
11—24	" " "	1 75
12—28	" " "	2 00
13—25	" half nocked, polished and painted...	2 25
14—28	" " " " ..	2 50
15—25	" ½ nocked, " " ..	3 00
16—28	" ½ " " " ..	3 50
17—25	" full " " " ..	4 00
18—28	" full " " " ..	4 50
19—22	" Old Deal, painted and gilt.....	5 50
20—25	" " " "	6 00
21—28	" " " "	6 75
22—25	" Best footed, with parallel points, painted and gilt, and painted between the feathers.....	8 50
23—28	" Ditto.....	9 00
24—25	" Alexandra.....	10 00
25—28	"	11 00

QUIVER BELTS.

Ladies.—No. 1, $1.75; No. 2, $2.00; No. 3, $2.50 each.
Gents.—No. 1, $2.25; No. 2, $3.00; No. 3, $4.50 each.

FINGER TIPS.

Ladies.—No. 1, 63c.; No. 2, $1.00 each.
Gents.—No. 1, 75c.; No. 2, $1.00 each.

ARM GUARDS.

LADIES.

No. 1, Green.....	$1 25 each.
" 2, " Stitched.....	1 50 "
" 3, Silk lined, Stitched..	1 75 "

GENTS.

No. 1, Green.....	$1 00 each.
" 2, " Stitched.....	1 25 "
" 3, Silk lined, Stitched.....	1 50 "

Bow Strings, Best Flemish, 25c., 30c., and 40c. each.

Rules for Archery and Lawn Tennis, 10c. per copy.

Orders for the above Archery Goods, amounting to five dollars and upwards, we will forward, free of carriage, to any address in the United States, east of the Missouri River, where there is an express or freight office, and at more distant points for a trifling addition.

ORANGE JUDD COMPANY, 245 BROADWAY, NEW YORK.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 328.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.60 per volume.

Our Fair List, which will be found on page 335, contains some 670 names of State, County, and other fairs to be held mainly this month and next. This is very gratifying evidence of the agricultural prosperity of the country. While many of the Secretaries of Agricultural and other Societies responded to our request for direct information as to the times of holding the fairs, we do not receive so many as we should have had, and have been obliged to take the announcements, as heretofore, from papers published in various States. If the various associations would fix upon the date early in the year, and inform us as soon as this is decided upon, it would greatly facilitate us in making up this list. As to the fairs, we say go to them; do not neglect your local fair for the sake of going to or exhibiting at the State fair, but visit both, and as many more as possible.

Comprehensive Horticulture.—The Premium List of the first annual Exhibition of the Southern California Horticultural Society, to be held at Los Angeles, Oct. 14 to 19, shows that the Society is very liberal in being "open to all the World," and equally so in the range of articles admitted to a horticultural fair. It begins with vehicles, runs through boots and cooking stoves, and includes about everything usually exhibited at fairs, down to the inevitable patch-work quilt. We would not intimate that horticultural products are overlooked, but they find themselves in unusual company. We highly commend one feature in the prizes: nearly all the second prizes are a year's subscription to the "Southern California Horticulturist."

Raising Farmers—Good Help Scarce.—Some suggestions on these topics worth thinking of, will be found on page 335.

A Manual of Georgia, for the use of Immigrants and Capitalists, prepared under the direction of Thomas P. Janes, A. M., M. D., Commissioner of Agriculture. Doct. Janes, as Commissioner, is not only doing good work to aid those already engaged in agriculture in his State, but has put forth this compendium, which cannot fail to be of service to those who would locate in its mild climate and upon its fertile soils. This work, a generous pamplet of 119 pages, gives, in a condensed form, a general sketch of the agricultural and others resources of the State, with statistics for each county and the principal towns. Knowing the author, we feel sure that the work is free from all exaggerations, and that its statements may be relied upon. The one fault in the work, is a failure to state how and where it may be procured, though we presume from the Commissioner himself, at Atlanta.

Physicians will be interested in the suggestions on page 334, concerning treatment of Animals, Veterinary Surgeons, and the "Results" referred to.

United States Entomological Commission.—The first Annual Report for 1877, relating to the Rocky Mountain Locust, is issued by the Department of the Interior. It forms one of the series of the Reports of the U. S. Geological Survey, and is uniform in style with those. When we say that three such Entomologists as C. V. Riley, A. S. Packard, Jr., and Cyrus Thomas, have put the results of their work into over 700 closely printed pages, which are abundantly illustrated by maps and engravings—some of the latter of great beauty—it will be admitted that the Locust has had justice done it. The work is highly creditable to the gentlemen of the Commission, and to the Government that authorized it, and we trust it will be most useful to the States ravaged by the insect. To this end we hope that it may be made accessible at cost price, to all who wish to procure it.

A Watch for the People.

Fig. 1.—FRONT VIEW, FULL SIZE.

A Most Excellent Watch, easily obtained for a Very Little Work, or for a Very Little Money.

Those who wish to obtain a really good, serviceable, reliable, and quite accurate Time-keeper, but who do not feel able to pay for one, or to pay but a small price for one, will be interested in the following:

Last spring, one of the Chief Editors of the *American Agriculturist*, having occasion to leave his Watch for cleaning, received a low-priced watch to carry in the meantime. He thought it would answer temporarily, if *watched* and corrected daily. To his great surprise, it ran very accurately week after week, varying from standard time less than a minute per week. The Agent of the manufacturers was hunted up, and during the summer different editors have obtained for themselves and friends a number of other watches of the same make, taking them direct from the general stock (not fixed up or selected ones), and carried them for weeks and months. **These watches have ALL given the highest satisfaction.** For example, one now carried by Mr. Judd has been compared daily with Benedict's Standard Clock for a month past, and it has scarcely varied a single second per day! This seems hardly credible, and, as a rule, can not be expected from any watch except one costing a hundred dollars or more, and thoroughly "adjusted to temperature and position." But this much is certain, the watches are such good time-keepers, that we can confidently recommend them to our friends wanting a watch of this kind.

Another important feature is, that these watches are *Stem-winders* and *Stem-setters*. No key is required for winding or moving the hands. (On depressing the little pivot near the ring, the stem moves the hands back or forward). So, after regulating, one has never to open the watch at all. Nine-tenths of all trouble with ordinary, good watches, comes from the admission of dust and moisture in opening, and especially from the fine dust that gets in from the key through the key-hole, and finds its way among the delicate works. All this is obviated in the stem-winding, stem-setting watches, and the necessity of biennial or annual, if not semi-annual, cleaning generally required is greatly lessened.

DESCRIPTION.—Fig. **1** is a front view of full size, and fig. **2**, a back view with the cover lifted to show the interior works. These works are covered with glass, so that when thus opened, no dust can enter. The case is strong, looks well, is heavily plated with nickel, which is not easily distinguished from silver, yet is harder, and is not tarnished, like silver, by gasses or sulphur vapors from the skin. For looks and wear, for *use* in fact, these cases are preferable to coin silver. The case is strong and substantial, the face is protected by a strong, flat crystal with modern *beveled edges*, and the dial is neat and clear. That the works, the most important part, are well and carefully made, is proved by what they *do*, as stated above. The weight of the watch is 4¾ ounces.

How to Get this Watch Free.

The watches described above are sold so low, that the manufacturers cannot make sufficient wholesale discount to admit of their being offered as general Premiums, like other new articles. **BUT,** as a **SPECIAL OFFER,** for the great Fair Month (September), and **only for this Month,** the Publishers offer 300 of these Watches, as follows:

One Watch will be presented to each subscriber who shall, during the month of September, secure and forward 16 Subscribers to the American Agriculturist for one year, at the NEW subscription rate of $1.50 a year, post-free. (For our new terms see the first page);

OR, 13 subscribers for 1¼ years (October 1878 to December 1879, inclusive), at $1.80 each, post-free;

OR, 31 Subscribers for one year, at the four-club rate of $1.25 a year, post-free;

OR, 25 Subscribers for 1¼ years (Oct. 1878 to Dec. 1879, inclusive), at $1.55 each, post-free.

Fig. 2.—*View of Works through the Glass Protector.*

(*Note* **1.**)—At least half of the above subscribers must be *new* ones, or those not now on our books.

(*Note* **2.**)—Two Subscribers for 6 months, or four Subscribers for 3 months will count the same as one subscriber for a year, for the above premium.

(*Note* **3.**)—TO DISTANT SUBSCRIBERS—Though the above offer is limited to September, yet, to put all on a par, those subscribers living anywhere so distant as not to receive this notice before Sept. 10, will be allowed 20 days after this paper does arrive, in which to gather and forward names for this premium.

(*Note* **4.**)—The subscribers need not necessarily all be at the same Post Office, but they must all be sent by the person who is to receive the Watch.

☞ This is the most liberal Premium we have ever offered, or expect to offer. N.B.—It is special, and only for September, 1878, with the 20 days after the arrival of the paper to distant subscribers, above specified.

Capital Work for the Fairs.

Those wishing the above premium, will do well to take a copy of the *American Agriculturist* along to the Fairs, where they can gather many names—perhaps enough at a single Fair to secure the watch.

This Watch Supplied to Subscribers for $10.

If any subscriber of the *American Agriculturist* may wish to *purchase* one of the above valuable watches, without getting it as a premium, or in addition to a premium one, the Publishers will procure and forward one on receipt of $10. They are sold at from $10 to $20, according to locality, and are worth more for real service and reliability, than many watches sold at several times this price.

Mode and Cost of Delivery.—The above watches will be packed in a safe wooden box and forwarded by express—the delivery to be paid by the receiver. The expressage will probably amount to from 25 to 50 cents, according to distance, to points east of the Mississippi River, and a trifle more to more distant points.

The Hessian Fly and the Wheat Midge.—These two pests stand on either hand of the farmer. If he sows early, the fly destroys; if he sows late, the midge infests the crop. Of the two evils the fly is the worse, and deserves the most consideration. This insect lays its eggs in August and early September upon the leaves of the young wheat. When hatched, the larva, a small white maggot, works down to the stalk near the root, where it sucks the juices, causing the leaves to become yellow, if not the death of the plant. A variety that starts freely and grows vigorously will therefore resist the fly better than another of less strong growth. And the more fertile the soil, the better the plant sustains the injury. The remedies are obvious. With the help of some active fertilizer and a vigorous variety of wheat, a late planted crop may be as far ahead when the winter comes, as the early crop not so favorably started. To sow on and after Sept. 15th seems to practically secure safety from this enemy.

Rain—How Much on an Acre.—A fall of rain one inch deep on an acre (43,560 square feet), is equal to 3,630 cubic feet; or 27,154 gallons; or 862 barrels. As water weighs 62½ lbs. to the cubic foot, the one inch of rain on an acre (3,630 cubic feet), equals 226,875 lbs., or over 113 tons; and on a single square mile, 145,200,000 lbs., or 72,600 tons. As we write (Aug. 7), a telegram says 2 inches of rain, twice the above amount, fell in Providence, R. I., yesterday, in half an hour! The annual fall of rain over the United States, east of 100° longitude, varies from 32 to 56 inches. A mean fall of 44 inches would give 37,928 barrels, or about 5,000 tons of rain-water to every acre. It is much more in many places.

Twenty-Five Cent Dinners for Families of Six, by Juliet Corson, Supt. of N. Y. Cooking School, No. 35 East 17th St., N. Y., price 15 cts. Several months ago, we noticed "Fifteen Cent Dinners," by the same author, and the present work is written with the same laudable purpose—*i. e.*, to show working-people and others how it is "possible to live upon a very moderate income." Bills of fare are given for each meal for every day in the week, the cost of each article being stated. Of course, to bring the prices within her limits, her directions for buying must be heeded, and the meals so arranged, that what is prepared for one, may sometimes serve in part for another. Even those who are not obliged to closely count their expenses, will find here hints for useful economy and methods of cooking, worthy of being tested. We are glad to see that the author gives due prominence to macaroni, a most nutritious article of food that may be cooked in various acceptable styles, and one which should be oftener found on the tables of the well-to-do, as well as of those who must study close economy.

Disease in Sheep.—In an item last month, by inadvertently dropping a word, we were made to say that "a soft loose swelling under the jaw," is known as "liver rot." It should have read, "it accompanies pleurisy, pneumonia, *and* the disease known as liver-rot," meaning of course that it is one of the attendant symptoms of "liver-rot," and not the disease itself.

State, County, and Other Fairs in 1878.

State and Industrial Fairs.

Am. Institute	New York	Sept. 11-Nov. 23
Ag'l and Mech'l Exposition of the Northwest	Dubuque, Iowa	Sept. 9-12
California	Sacramento	Sept. 16-21
Cal., Southern	Los Angeles	Oct. 14-19
Colorado	Denver	Sept. 21-28
Connecticut	Hartford	Sept. 10-13
Dakota		Sept. 10-13
Delaware	Dover	Sept. 23-28
Georgia	Macon	Oct. 28—Nov. 2
Illinois	Freeport	Sept. 16-21
Indiana	Indianapolis	Sept. 30, Oct. 5
Inter State	Chicago	Sept. 4, Oct. 19
Iowa	Cedar Rapids	Sept. 16-20
Kansas City Ex.	Kansas City, Mo.	Sept. 16-20
Kentucky Ag'l & Mech'l	Lexington	Aug. 27-31
Maine	Portland	Sept. 17-20
Maryland	Pimlico	Sept. 24-27
Maryland Inst'e.	Baltimore	Oct. 2, Nov. 2
Mass. Char. Mechanics	Boston	Sept. 2, Nov. 2
Mechanics Inst'e.	San Fr'cisco	Aug. 13, Sept. 14
Michigan	Detroit	Sept. 16-20
Minnesota A. & M.	Minneapolis	Sept. 2 7
Minnesota State	St. Paul	Sept. 2- 7
Missouri	Madison	Sept. 9-13
Montana	Helena	Sept. 23-26
Nebraska	Lincoln	Sept. 24-27
Nevada	Reno	Oct. 7-12
New England	Worcester, Mass.	Sept. 3- 6
New Hampshire	Manchester	Oct.
New Jersey	Waverly	Sept. 16-20
New Jersey, Hort.	Mt. Holly	Sept. 9-13
New York	Elmira	Sept. 9-13
Ohio	Columbus	Sept. 9-13
Oregon	Salem	Oct. 10-18
Pennsylvania	Erie	Sept. 23-27
St. Louis	St. Louis, Mo.	Oct. 7-12
Texas	Austin	Oct. 29, Nov. 2
Texas	Houston	Oct. 22-26
Tri-State Fair	Dayton, O.	Sept. 16-21
Vermont	St. Albans	Sept. 10-13
Virginia	Richmond	Oct. 23, Nov. 1
Wisconsin	Madison	Sept. 9-13

DISTRICT FAIRS.

Georgia North	Atlanta	Oct. 21
Ohio Central	Mechanicsburg	Sept. 3- 6
Ohio Northern	Cleveland	Sept. 9-13
Kentucky North	Florence	Aug. 27
Ohio Southern	Dayton	Sept. 23-27
Indiana Northern	Ft. Wayne	Sept. 9-14
Iowa Northern	Pottsville	Sept. 3- 6
Tri-State, O. Mich Indiana	Toledo	Sept. 16-24
Wisconsin Cent'l.	Watertown	Sept. 18-20
Wisconsin N. W.	Oshkosh	Sept. 23-27
Wisconsin South.	Beloit	Sept. 2- 6
Wisconsin S. W.	Mineral Point	Sept. 3- 9

County and Town Fairs.

MAINE.

Androscoggin	Lewiston	Oct. 1- 3
Franklin	Farmington	Oct. 8- 0
Knox	Camden	Oct. 1- 3
Montville	Montville	Oct. 2
Piscataquis East.	Brownville	Sept. 23-24
Searboro	Prospect Hill	Sept. 24-25
Waldo & Penobs't	Monroe	Oct. 1- 2

NEW HAMPSHIRE.

Cheshire	Keene	Sept. 25-26
Sullivan	Claremont	Sept. 25 26

VERMONT.

Caledonian	St. Johnsbury	Sept. 17-19
Franklin	Sheldon	Sept. 4- 6

MASSACHUSETTS.

Barnstable	Barnstable	Sept. 17-18
Berkshire	Pittsfield	Oct. 1- 3
Bristol	Taunton	Sept. 24-26
Bristol Center	Myrick's	Sept. 11-13
Deerfield Valley	Charlemont	Sept. 19-20
Essex	Lawrence	Sept. 24-25
Franklin	Greenfield	Sept. 26-27
Hampden	Springfield	Sept. 24-25
Hampden, East	Palmer	Sept. 17-18
Hampshire	Amherst	Sept. 17-18
Hampshire, etc.	Northampton	Sept. 19-21
Hanson	Hanson	Sept. 25-26
Highland	Middlefield	Sept. 12-13
Hingham	Hingham	Sept. 24-25
Hoosac Valley	North Adams	Sept. 17-18
Housatonic	G't Barrington	Sept. 25-27
Marshfield	Marshfield	Sept. 11-12
Martha's Viney'd.	West Tisbury	Oct. 1- 2
Middlesex	Concord	Sept. 25-27
Middlesex, North.	Lowell	Sept. 24-25
Middlesex, South.	Framingham	Sept. 17-18
Nantucket	Nantucket	Sept. 4- 5
Natick	Natick	Oct. 2- 3
Norfolk	Readville	Sept. 26-27
Plymouth	Bridgewater	Sept. 18-20
Union	Blandford	Sept. 18-20
Wilmington Far. Club,	Wilmington	Sept. 20
Worcester	Worcester	Sept. 19-20
Worcester, North	Fitchburg	Sept. 26
Worcester, N. W.	Athol	Oct. 1- 2
Worcester, South.	Sturbridge	Sept. 12-13
Worcester, S. E.	Milford	Sept. 24-26
Worcester, West.	Barre	Sept. 26-27

RHODE ISLAND.

Washington	West Kingston	Sept. 10-12

CONNECTICUT.

Danbury Town	Danbury	Oct. 1- 5
Fairfie d	Norwalk	Sept. 10-12
Guilford	Guilford	Sept. 24
Housatonic	New Milford	Sept. 24-26
Meriden	Meriden	Sept. 18-20
Milford & Orange	Milford	Sept. 11-12
New Haven	New Haven	Sept. 25-27
New Lond'n	Norwich	Sept. 17-19
Ridgefield	Ridgefield	Sept. 24-28
Union	Falls Village	Sept. 10-11
Watertown	Watertown	Sept. 24-26
Windham	Brooklyn	Sept. 24-26

NEW YORK.

Annsville and Lee	Taberg	Sept. 10-12
Brookfield	Clarkville	Sept. 24-25
Broome	Whitney's Point	Sept. 3- 6
Chautauqua	Jamestown	Sept. 11-13
Danby	Danby, (Tom'k's)	Sept. 18
Delaware	Delhi	Sept. 10-12
Duchess	Washington Hol.	Sept. 17-19
Edmest'n & Bur'n	Edmeston	Sept. 11-13
Erie	Hamburgh	Sept. 10-13
Essex	Westport	Sept. 17-19
Franklin	Malone	Sept. 24-27
Fulton	Johnstown	Sept. 17-19
Galen	Clyde	Sept. 20-21
Genesee	Batavia	Sept. 6- 7
Gouverneur	St. Lawrence Co.	Sept. 4- 6
Greene	Cairo	Sept. 18-19
Hampton	Bridgehampton	Oct. 1- 3
Iroquois	Cattaraugus Res	Sept. 17-20
Jefferson	Watertown	Sept. 24-26
Lenox	Oneida	Sept. 24-27
Lewis	Lowville	Sept. 10-13
Maine Village	Maine, (Broome)	Aug. 28-30
Oneida	Rome	Sept. 16-20
Oneonta Union	Oneonta	Sept. 26-28
Onondaga	Syracuse	Sept. 17-19
Onondaga Indian	Onondaga Castle	Sept. 25-26
Onondaga N'west.	Baldwinsville	Sept. 24-27
Orleans	Albion	Sept. 2 -28
Oswego Falls	Fulton Station	Sept. 17-19
Oswego	Mexico	Sept. 10-12
Otsego	Cooperstown	Sept. 23-25
Phœnix Union	Phœnix, Oswego	Sept. 10-13
Queens	Mineola	Sept. 21-26
Racket & St. Regis Val'y	Potsdam	Sept. 17-19
St. Lawrence	Canton	Sept. 17-19
Sandy Creek, Richland, Orwell	Sandy Creek	Sept. 4- 6
Sangerfield & Mar	Waterville	Sept. 23 25
Schenectady	Schenectady	Sept. 10-13
Schenevus Valley	Schenevus	Sept. 19-21
Schoharie	Schoharie	Sept. 21-26
Seneca	Waterloo	Sept. 24-26
Skaneateles Farmers' Club		Sept. 17-18
Steuben	Bath	Sept. 25-27
Sullivan	Monticello	Oct. 2- 3
Susquehannah Val'y	Unadilla	Sept. 17-19
Tompkins	Ithaca	Oct. 1- 3
Waddington	Waddington	Sept. 3- 5
Warrensburgh Un'n	Warrensburgh	Sept. 17-20
Washington	Sandy Hill	Sept. 3- 6
Western N. York	Rochester	Sept. 17-21
Winfield	West Winfield	Sept. 16-18
Wyoming	Warsaw	Sept. 24-26
Yates	Penn Yan	Sept. 24-26

NEW JERSEY.

Burlington	Mt. Holly	Oct. 8-10

PENNSYLVANIA.

Berks	Reading	Oct. 1- 4
Bra'ford	East Towanda	Sept. 25 27
Bucks	Kutstown	Sept. 17-20
Chartiers Valley	Cannonsburgh	Sept. 24 27
Chester	West Chester	Sept. 19-21
Columbia	Bloomsburg	Oct. 9 12
Connoquenessing Valley	Harmony	Sept. 10 13
Cumberland	Carlisle	Oct. 1- 4
Doylestown	Doylestown	Oct. 1- 4
Farm. & Mech. In.	Easton	Oct. 1- 4
Franklin	Chambersburg	Oct. 8-11
French Creek	Cochrantown	Sept. 17-19
Gratz	Gratz	Sept. 24-27
Indiana	Indiana	Oct. 1- 4
Lehigh	Allentown	Sept. 24-27
Lycoming	Williamsport	Sept. 17-20
Lycoming & Clin.	Jersey Shore	Sept. 25-28
Mercer	Stoneboro	Sept. 9-12
Monongahela Val.	Monongahela C'y	Sept. 18-20
Montgomery	Ambler Park	Sept. 23-23
Northampton	Nazareth	Oct. 1- 4
Northumberland	Dewart	Oct. 1- 3
Oxford	Oxford	Sept. 25-27
Potter	Coudersport	Sept. 25-27
Schuylkill	Orwigsburg	Sept. 23-26
Somerset	Somerset	Sept. 25 27
Susquehannah	Montrose	Sept. 25-26
Tioga	Wellsboro	Sept. 25-27
Troy	Troy	Sept. 19-20
Union	Burgettstown	Oct. 1- 3
Warren	Sugar Grove	Sept. 17-19
Wayne	Honesdale	Oct. 1- 3
Westmoreland	Greensburg	Sept. 24-27
York	York	Oct. 1- 4

OHIO.

Allen	Lima	Oct. 1- 4
Ashtabula	Jefferson	Sept. 24-27
Athens	Athens	Oct. 3- 4
Auglaize	Wapakoneta	Sept. 25-27
Belmont	St. Clairsville	Sept. 18-20
Brown	Georgetown	Sept. 10-13
Butler	Hamilton, 1st week in Oct.	
Carroll	Carrollton	Oct. 9-11
Champaign	Urbana	Sept. 22-2
Clarke	Springfield	Aug. 20-23
Clermont	Boston	Sept. 3- 6
Clinton	Wilmington	Sept. 2- 5
Columbiana	New-Lisbon	Sept. 24-24
Coshocton	Coshocton	Sept. 24-27
Crawford	Bucyrus	Sept. 24-27
Cuyahoga	Chagrin Falls	Oct. 1- 4
Darke	Greenville	Sept. 17-20
Defiance	Defiance	Oct. 1- 4
Delaware	Delaware	Sept. 25-27
Erie	Sandusky	Sept. 24-27
Fairfield	Lancaster	Oct. 9-12
Fulton	Wauseon	Sept. 24-27
Gallia	Gallipolis	Sept. 11-13
Greene	Xenia	Aug. 14 16
Hancock	Findlay	Oct. 2- 5
Hardin	Kenton	Sept. 25-28
Harrison	Cadiz	Sept. 3- 6
Hocking	Logan	Oct. 2- 5
Holmes	Millersburg	Sept. 25-27
Jackson	Jackson C. H.	Sept. 13-15
Jefferson	Smithfield	Sept. 25-27
Knox	Mt. Vernon	Sept. 24-27
Lake	Painesville	Sept. 4- 6
Lawrence	Ironton	Sept. 17-20
Licking	Newark	Oct. 1- 4
Logan	Bellefontaine	Oct. 1- 4
Lorain	Elyria	Oct. 1- 3
Lucas	Toledo	Sept. 18- 1
Mahoning	Canfield	Oct. 1- 3
Marion	Marion	Oct. 1- 4
Medina	Medina	Sept. 17-19
Meigs	Pomeroy	Sept. 19-20
Mercer	Celina	Sept. 10-13
Miami	Troy	Oct. 8-11
Monroe	Woodsfield	Sept. 17-19
Morgan	McConnellsville	Sept. 17-19
Morrow	Mt. Gilead	Oct. 9-11
Muskingum	Zanesville	Sept. 3- 6
Ottawa	Port Clinton	Sept. 16-18
Paulding	Paulding	Oct. 1- 4
Perry	New Lexington	Sept. 25-27
Pickaway	Circleville	Oct. 1- 4
Preble	Eaton	Sept. 24-27
Portage	Ravenna	Sept. 25-27
Putnam	Ottawa	Oct. 9-12
Richland	Mansfield	Sept. 5- 7
Ross	Chillicothe	Sept. 3- 6
Sandusky	Fremont	Oct. 1- 4
Seneca	Tiffin	Oct. 1- 4
Shelby	Sidney	Oct. 1- 4
Stark	Canton	Oct. 1- 4
Summit	Akron	Oct. 2- 5
Trumbull	Warren	Sept. 17-20
Tuscarawas	Canal Dover	Oct. 1- 4
Union	Marysville	Oct. 1- 4
Van Wert	Van Wert	Sept. 17-20
Warren	Lebanon	Sept. 17-20
Washington	Marietta	Sept. 4- 6
Wayne	Wooster	Oct. 2- 4
Wood	Tontogany	Sept. 3- 6

INDIANA.

Allen	Fort Wayne	Sept. 9-13
Bartholomew	Columbus	Aug. 27-31
Bridgeton Union	Bridgeton	Aug. 26-31
Boone	Lebanon	Sept. 9-13
Carroll	Delphi	Sept. 23-27
Cass	Logansport	Sept. 24-27
Clark	Charlestown	Sept. 10-13
Clinton	Frankfort	Sept. 16-20
Decatur	Greensburg	Aug. 20-23
Delaware	Muncie	Sept. 10-13
Dunkirk Union	Dunkirk	Sept. 3- 6
East Enterprise	Switzerland Co.	Sept. 10-13
Edinburgh Union	Edinburg	Sept. 24-28
Elkhart	Goshen	Oct. 1- 4
Fayette	Connersville	Sept. 3- 6
Fulton	Rochester	Sept. 19-21
Fountain W. & V.	Covington	Sept. 24-27
Franklin	Brookville	Oct. 12-14
Gibson	Princeton	Sept. 16-20
Grant	Marion	Sept. 17-20
Greene	Linton	Oct. 1- 5
Hamilton	Cicero	Aug. 27-30
Harrison	Corydon	Sept. 10 14
Hendricks	Danville	Sept. 10-13
Henry	New Castle	Sept. 17-20
Howard	Kokomo	Sept. 16-21
Huntington	Huntington	Sept. 25-27
Jasper	Rensalaer	Sept. 1-20
Jay	Portland	Oct. 1- 4
Jefferson	Madison	Sept. 17-20
Knightstown U'n.	Knightstown	Aug. 27-30
Knox	Vincennes	Oct. 14-19
Kosciusko	Warsaw	Sept. 23-26
La Grange	La Grange	Sept. 25-27
Lake	Crown Point	Sept. 24-27
La Porte	La Porte	Sept. 25-27
Lawrence	Bedford	Sept. 10-13
Loogootee Dist.	Loogootee	Oct. 8 12
Madison	Anderson	Sept. 3- 6
Marion	Valley Mills	Sept. 3- 7
Miami	Peru	Sept. 17-20
Middlefork Dist.	Middlefork	Aug. 26-30
Middletown U'n.	Middletown	Aug. 3-23
Monroe	Bloomington	Sept. 18-20
Mitchell District	Mitchell	Sept. 25-29
Morgan	Martinsville	Sept. 10-15
Noble	Ligonier	Sept. 17-20
Northeastern Ind.	Waterloo	Oct. 8-11
Perry	Rome	Oct. 1- 4
Porter	Valparaiso	Sept. 18-20
Posey	New Harmony	Sept. 10-13
Pike	Petersburg	Sept. 2- 6
Putnam	Greencastle	Sept. 23-28
Prairie Farmer	Francesville	Sept. 10-13
Randolph	Winchester	Sept. 17-20
Remington Dist.	Remington	Aug. 27-30
Ripley	Osgood	Aug. 27-30
Rush	Rushville	Sept. 10-13
Russellville U'n.	Russellville	Aug. 19-21
Shelby	Shelbyville	Sept. 3- 7
Stark	Knox	Sept. 26-28
Steuben	Angola	Sept. 24-27
Sullivan	Sullivan	Sept. 3- 7
Thorntown Union	Thorntown	Sept. 23-28
Tippecanoe	Lafayette	Sept. 2- 7
Union City Dist.	Union City	Sept. 24-27
Vigo	Terre Haute	Sept. 9 14
Wabash	Wabash	Sept. 10-13
Warren	West Lebanon	Sept. 9-14
Warrick	Boonville	Sept. 3-12
Wells	Bluffton	Sept. 24-27
Worthingt'n Ind'l	Worthington	Sept. 24-27

ILLINOIS.

Adams	Camp Point	Sept. 2- 6
Adams	Quincy	Sept. 24-27
Boone	Belvidere	Sept. 3- 6
Brown	Mt. Sterling	Sept. 17-20
Bureau	Bureau	Sept. 3-10
Carroll	Mt. Carroll	Aug. 27-0
Cass	Virginia	Aug. 27-30
Champaign	Champaign	Sept. 3- 6
Christian	Taylorville	Sept. 17-20
Clark	Marshall	No report
Clay	Louisville	Oct. 8-11
Clay	Flora	Sept. 24-27
Clinton	Carlyle	No report
Coles	Charleston	Sept. 17-21
Crawford	Robinson	Oct. 8-11
Cumberland	Majority Point	Sept. 25-28
DeKalb	Sandwich	Sept. 10-13
DeKalb	Sycamore	Sept. 24-27
DeKalb	DeKalb	Sept. 11-13
DeWitt	Clinton	Aug. 20-23
DeWitt	Farmer City	Aug. 26-30
Douglas	Tuscola	Sept. 10-14
DuPage	Wheaton	Sept. 11-13
Edgar	Paris	Sept. 3- 6
Edwards	Albion	Oct. 1- 5
Fayette	Vandalia	Oct. 3- 5
Ford	Paxton	Sept. 10-13
Ford	Gibson City	Aug. 20-23
Franklin	Benton	Sept. 24- 7
Fulton	Canton	Sept. 3- 6
Fulton	Avon	Sept. 24-27
Gallatin	Shawneetown	Oct. 1- 5
Greene	Carrollton	Oct. 1- 4
Grundy	Morris	Sept. 24-27
Hardin	Elizabethtown	Sept. 18-21
Henderson	Biggsville	Sept. 17-20
Henry	Cambridge	Aug. 26-30
Iroquois	Onarga	Sept. 2- 7
Jackson	Murphysboro	Sept. 10-13
Jasper	Newton	Sept. 24-27
Jefferson	Mt. Vernon	Oct. 8-11
Jersey	Jerseyville	Oct. 15-18
Jo Daviess	Galena	Sept. 24-27
Jo Daviess	Warren	Sept. 21-27
Kane	Aurora	Sept. 3- 6
Kankakee	Kankakee	Sept. 24-27
Kendall	Bristol	Sept. 10-13
Knox	Knoxville	Sept. 17-20
Lake	Waukegan	Sept. 23-28
LaSalle	Ottawa	Sept. 2- 6
Lawrence	Lawrenceville	Oct. 3- 5
Livingston	Pontiac	Sept. 2- 7
Livingston	Fairbury	Sept. 10-13
Logan	Lincoln	Aug. 26-31
Logan	Atlanta	Aug. 19-23
Macon	Decatur	Sept. 30 to Oct. 4
Macoupin	Carlinville	Sept. 30 to Oct. 4
Marion	Centralia	Oct. 1- 4
Marshall	Wenona	Sept. 23-27
Mason	Havana	Sept. 17-20
Massac	Metropolis	Oct. 8-11
McDonough	Macomb	Aug. 27-31
McHenry	Woodstock	Sept. 24-27
McHenry	Marengo	Sept. 10-13
McLean	Bloomington	Sept. 3- 6
Menard	Petersburg	Sept. 3- 6
Mercer	Aledo	Sept. 24-27
Montgomery	Hillsboro	Oct. 2- 4
Montgomery	Litchfield	Oct. 15-18
Morgan	Jacksonville	Sept. 10-13
Moultrie	Sullivan	Sept. 10-14
Ogle	Oregon	Sept. 3- 6
Ogle	Rochelle	Sept. 23-26
Peoria	Peoria	Sept. 10-13
Perry	Pickneyville	Oct. 2- 4
Piatt	Monticello	Aug. 30-2
Pike	Pittsfield	Sept. 24
Pope	Golconda	Oct. 2- 5
Putnam	Mennepin	Sept. 10-12
Randolph	Sparta	Sept. 25-27
Randolph	Chester	Oct. 15-18
Richland	Olney	Sept. 17-20
Rock Island	Hillsdale	Sept. 3- 6
Sangamon	Springfield	Sept. 23-27
Schuyler	Rushville	Sept. 24-27
Union	Jonesboro	Sept. 10-13
Vermillion	Catlin	Sept. 10-13
Vermillion	Hoopeston	Aug. 27-30
Vermillion	Danville	Sept. 24-27
Wabash	Mt. Carmel	Sept. 30 to Oct. 3
Warren	Monmouth	Sept. 10-13
Wayne	Fairfield	Sept. 17-20
Whiteside	Sterling	Sept. 24-27
Whiteside	Albany	Sept. 11-13
Whiteside	Morrison	Sept. 3- 6
Will	Joliet	Sept. 9-13
Williamson	Marion	Oct. 1- 4
Winnebago	Rockford	Sept. 10-13

MICHIGAN.

Eaton	Charlotte	Sept. 24-27

WISCONSIN.

Dodge	Juneau	Sept. 4- 6
Jefferson	Jefferson	Sept. 17-20
Kenosha	Kenosha	Sept. 17-20
Marquette	Montello	Oct. 2- 4
Monroe	Sparta	Sept. 25-27
Racine	Burlington	Oct. 1- 4
Rock	Janesville	Sept. 3- 6
Sauk	Baraboo	Sept. 16-18
Walworth	Elkhorn	Sept. 24-27
Waukesha	Waukesha	Sept. 3- 6

IOWA.

Benton	Vinton	Sept. 3- 6
Butler	Butler Center	Sept. 24-26
Cerro Gordo	Mason City	Sept. 24-26
Clarke	Osceola	Sept. 17-19
Crawford	Denison	Sept. 25-27
Decatur	Leon	Sept. 10-13
Delaware	Manchester	Sept. 24-27
Fayette	West Union	Sept. 24-27
Franklin	Hampton	Sept. 24-26
Hardin	Eldora	Sept. 11-13
Jackson	Maquoketa	Sept. 24-27
Johnson	Iowa City	Sept. 24-27
Keokuk	Sigourney	Sept. 24-27
Lucas	Charlton	Sept. 25-27
Madison	Winterset	Sept. 11-14
Mahaska	Oskaloosa	Sept. 4- 7
Marshall	Marshalltown	Sept. 10-13
Mitchell	Osage	Sept. 26-28
Muscatine	Muscatine	Sept. 24-27
North'n Iowa Dist.	Postville	Sept. 3- 6
Page	Clarinda	Sept. 10-14
Plymouth	Le Mars	Sept. 11-13
Poweshiek Cent'l.	Malcolm	Sept. 10-13
Ringgold	Mt. Ayer	Sept. 13-14
Scott	Davenport	Sept. 2- 6
Un'n & Mech'ville	Mechanicsville	Sept. 10-13
Union at Villisca	Villisca	Sept. 3- 7
Union at Mt. Joy	Long Grove	Sept. 10-13
Wapello	Ottumwa	Sept. 24-27
Washington	Washington	Sept. 10-13
Woodbury	Sioux City	Sept. 3- 6
Appanoose	Centreville	Sept. 4- 6
Des Moines	Burlington	Sept. 24-27
Floyd	Charles City	Sept. 25-27
Humboldt	Humboldt	Sept. 18-20
Jones	Monticello	Sept. 3- 6
Warren	Indianola	Sept. 3- 5
Winneshiek	Hesper	Sept. 17-19

KANSAS.

Allen	Iola	Sept. 17-20
Humboldt (Allen Co.)	Humboldt	Oct. 1- 5
Neosho Valley Dis.	Neosho Falls	Sept. 23-27
7th Judicial Dist.	Chanute	Sept. 4- 7
Anderson	Garnett	Sept. 18-20
Brown	Hiawatha	Sept. 16-21
Kansas Central	Junction City	Oct. 9-11
Doniphan	Troy,	Last week in Sept.
Kansas Valley	Lawrence	Sept. 3- 7
Franklin	Ottawa	Sept. 11-14
Greenwood	Eureka	Sept. 18-20
Harvey	Newton	Oct. 3- 4
Jefferson	Oskaloosa	Sept. 17-20
Jewell	Jewell Center	Sept. 12
Labette	Oswego	Sept. 12-14
Linn	La Cygne	Oct. 3- 5
Lyon	Lyon County	Oct. 1- 4
Marion	Peabody	Oct. 3- 4
Marshall	Marysville	Sept. 8-10
Miami	Paola, week after Kas City	
Northwestern	Beloit	Sept. 24-26
Burlingame	Burlingame	Sept. 25-27
Osborne	Osborne	Sept. 24-27
Riley	Manhattan	Sept. 24-27
Sedgwick	Wichita	Sept. 10-14
Shawnee	Topeka	Sept. 10-13
Topeka Driv'g P'k Ass'n.	Topeka	Sept. 3- 6
Smith	Smith Center	Sept. 18-19
Wabaunsee	Alma	Sept. 18-19
Washington	Washington	Sept. 25-28
Wilson	Fredonia	Sept. 18-21

NEBRASKA.

Adams	Juniata	Sept. 16-18
Burt	Tekamah	Sept. 18-20
Butler	David City	Sept. 18-20
Cass	Plattsmouth	Sept. 17-20
Clay	Sutton	Sept. 17-18
Furnas	Beaver City	Sept. 12-13
Gage	Beatrice	Sept. 17-19
Hall	Grand Island	Sept. 18-20
Hamilton	Aurora	Sept. 19-21
Jefferson	Fairbury	Sept. 11-14
Johnson	Tecumseh	Sept. 19-21
Lancaster	Lincoln	Sept. 25-27
Nemaha	Brownville	Sept. 18-20
Otoe	Syracuse	Sept. 1-19
Platte	Columbus	Sept. 11-13
Richardson	Salem	Sept. 18-20
Saline	Crete	Sept. 18-20
Saunders	Wahoo	Sept. 19-21
Seward	Seward	Sept. 19-21
Webster	Red Cloud	Sept. 17-19
York	York	Sept. 17-20

MISSOURI.

Newton	Neosho	Sept. 18-20
St. Genevieve	St. Genevieve	Sept. 4- 6

MARYLAND.		
Talbot	Hambleton Park	Sept. 11-13
Washington		Oct. 16-18
West'n Maryland	Cumberland	Oct. 22-25
CALIFORNIA.		
California South'n	Los Angeles	Oct. 14-19
Cal. South'n Hort	Los Angeles	Oct. 14-19
El Dorado	Placerville	Sept. 13-15
Golden Gate	Oakland	Sept. 9-16
Monterey	Salinas City	Oct. 8-12
Napa & Solano	Vallejo	Sept. 3
Northern	Marysville	Sept. 23-28
San Joaquin Val	Stockton	Sept. 24-28
Santa Clara	San Jose	Sept. 30, Oct. 5
Siskiyou	Yreka	Oct. 2- 5

Grasses Named.—"C. R. G.," Young Co., Tex. "Pungent Meadow Grass (*Eragrostis poæoides*, var. *megastachya*), with us an annual weed in cultivated grounds and waste places. It has a strong odor, as indicated by its common name. It belongs to a genus of little or no agricultural value, and if your horses show a fondness for it, it is probably due to the fact that it is a change from their ordinary food. We should not like to confine an animal to this as its only fodder...."S. S.," Stonewall, Va. "Velvet Grass" (*Holcus lanatus*), and so unlike Orchard grass, that the seed could hardly have been sold for that by any competent seedsman. It is of very little value, but is sometimes grown on soils too poor to raise a better grass ..."J. S.," Henderson, N. C. Italian Rye Grass (*Lolium Italicum*), a valuable grass on good soils. The seeds may have been introduced in some packing case, or mixed with other seeds.

Pear Blight.—"J. C. W.," Hartford, Conn., and others. We are obliged to reply, as we have many times in the past, that the "cause" of the blight is not known. It is supposed to be due to fungi, but this has not been demonstrated. Its presence is not known or suspected, until the tree, or a part of it, is *dead*, hence remedies can not be applied. The preventives that have been suggested are numerous, but we do not find any two fruit growers agree as to their efficacy. All that, with our present limited knowledge, can be advised, is, to cut away the blighted portion, be it more or less, and for fear that fungi may be concerned, burn the prunings. Though pear blight is a topic discussed at pomological meetings more frequently than any other, scarcely any positive knowledge has been thus far elicited.

Prickly Comfrey again comes forward as a matter of interest. "A. W.," Essex Co., N. Y., calls it "a humbug of the worst kind," as even his horses will not eat it. While some maintain it is a failure as a fodder crop, others speak favorably of it, and we have no means of knowing what there has been in the treatment of the plant, or in the method of feeding it, to account for these wide differences of opinion. In our own experience, a row 200 feet long, it comes early and holds on late, and if our animals would only eat it, we should esteem it highly, but, in fact, neither of our cows would touch it last year or this; early this spring, our horses seemed fond of it, but refused it altogether after they had had a nip at the pasture. The pigs eat it, but where "pussley" and garden refuse are abundant, we see no inducement to cultivate Comfrey or other crops for feeding pigs. We much regret that we can give no more favorable report from our own experience. It would appear that this Comfrey meets with more favor in the South than in the North and West, as it will there yield fodder before corn can be made available.

The Fly in Wheat.—"B. H.," Hillsboro, N. J. The "fly" is not in the seed wheat. After the young wheat plants have come above the ground, the fly lays its eggs on the leaves near the surface, and these hatch in a few days into small white maggots, which crawl down to the bottom of the stalk, pierce it and suck the juices. Anything that will disturb or destroy the maggot or the fly will save the wheat. See "Hints for Work," page 324.

Lime, Salt, and Ashes, we would say to "J. A. B.," of Great Falls, N. H., will not make a good compost for sandy land. The ashes are all right, and the more used the better. Lime is seldom of any use on light soil, though often valuable for heavy land, and salt only on special crops or soils naturally fertile. If it is thought advisable to use either or all of these, there can be no advantage in mixing them; though the salt and lime may be put together to advantage for use on heavy soils, as the mixture results in beneficial chemical action.

Hoisting Wheel.—"J. G.," East Toledo, Ohio. A plan for constructing a hoisting wheel was given in the *American Agriculturist* for August, 1875.

Treatment for Garget.—"H."—We have found a mixture of 7 parts of Glycerine and 1 part of Iodide of Potassium, to be the most effective application for caked or swollen udder. Before rubbing this upon the udder, that organ should be well fomented with warm water for some time. Half an ounce of Saltpetre may be given to the cow daily, while the udder is feverish.

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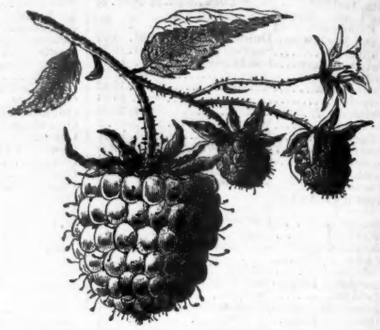
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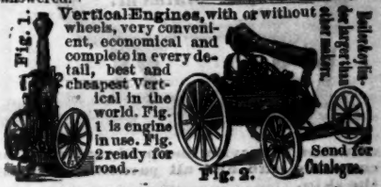

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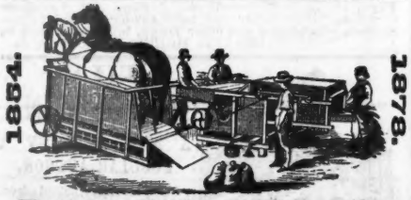

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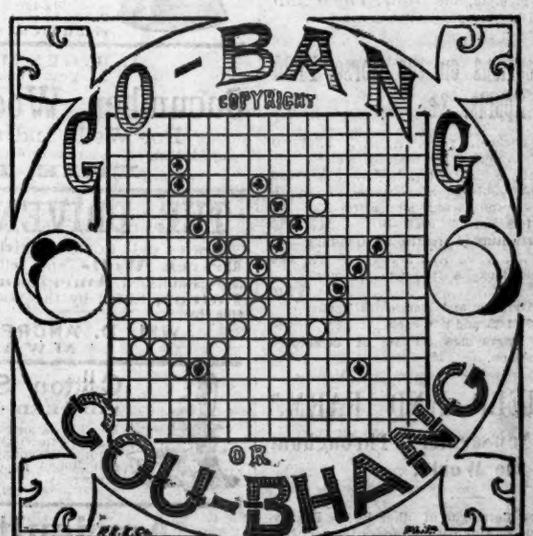

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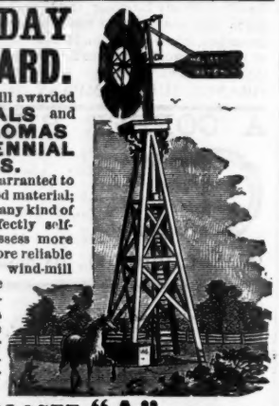

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